Submission No. 36

> MINERALS COUNCIL OF AUSTRALIA

SUBMISSION:

INQUIRY INTO THE DEVELOPMENT OF THE NON-FOSSIL FUEL ENERGY INDUSTRY IN AUSTRALIA:

CASE STUDY INTO THE STRATEGIC IMPORTANCE OF AUSTRALIA'S URANIUM RESOURCES

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Minerals Council of Australia

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EXECUTIVE SUMMARY

Australia has the largest proportion (39 per cent) of ***Economic Demonstrated Resources*** (EDR) of uranium in the world followed by Canada (with 17 per cent), Kazakhstan (16 per cent) and South Africa (7 per cent). Moreover, Australia's resources are also the lowest-cost uranium resources in the world, being almost entirely recoverable at less than US$40/kg U. The spot price at 9 May 2005 was $75/kgU ($29/lb U_3O_8).

The majority of Australia's uranium deposits were discovered prior to 1975. Since then, only four further deposits have been added to the 50 or so known ones. Given that between 1983 and 1996 hardly any exploration activity was undertaken, and that a country's EDR is of course really a statement of what we know rather than what is actually there, Australia's current ERD, though large, underestimates the potential resource.

During 2004, Australian uranium production increased by 18.6 per cent to a new Australian record of 10 592 tonnes of U_3O_8 (8 981 t U). By way of comparison, to supply Australia's gross electricity production, 6 000 tonnes of U_3O_8/year would be needed. Australia has provided 20-25 per cent of world uranium supply from mines over the past few years. At present only about 55% of global demand is supplied from mines with the remainder from diluted weapons grade uranium (Highly Enriched Uranium – HEU), from other stockpiles and from recycled material. Australia's uranium exports represent our second largest energy export in terms of energy content – representing approximately 40 per cent of Australia's total energy exports in thermal terms.

The International Atomic Energy Agency now projects at least 60 new nuclear generating plants coming into operation over the next 15 years, making an installed capacity of 430 GWe in place in 2020 (16.8 per cent more than current levels). The increase is based on plans and actions in China, Finland, France, India, Russia and elsewhere, together with the changed outlook due to the coming into force of the Kyoto Protocol. Australia is well positioned to take advantage of such electricity generation developments.

The Australian Government has emphasised the potential of further uranium exploration and export sales in accordance with established control arrangements and has commenced negotiations for a bilateral treaty for safeguards with China to allow for the export of Australian uranium for nuclear power purposes to the world's fastest growing economy.

However, Canada exports more uranium than Australia to world markets even though it has only 17 per cent of the world's EDR compared to 39 per cent for Australia. The reason is simply explained. It is due to the fact that Canada does not have a restriction on the number of uranium mines that are permitted to operate.

Based on demonstrated safety and environmental performance of existing mines, **the MCA sees no justification for restricting the establishment of further uranium mines in Australia**.

Greenhouse Gas Abatement

The Minerals Council accepts that, in accordance with the 1992 Rio Declaration, there is sufficient scientific evidence to be concerned at the impacts of anthropogenic greenhouse gas emissions on the world's climate system although it is recognised that there are uncertainties in the science of climate change.

Nuclear power generation emits no CO_2. From a greenhouse perspective, an attraction of nuclear energy is that every 22 tonnes of uranium (26 t U_3O_8) used saves the emission of one million tonnes of CO_2 relative to coal.

The MCA accepts that it is up to government and the community to review how Australia generates its electricity and to assess whether nuclear energy should make a contribution.

The MCA considers technology to be the key to achieving consistent large-scale emission reductions. The MCA is committed to working with government to determine a suite of policies and strategies, underpinned by technology, as part of a global solution for greenhouse emissions abatement that are: demonstrably effective; cost-effective in maintaining and enhancing industry's international competitiveness; nationally consistent; non-discriminatory (including not disadvantaging "early movers" and new entrants); and comprehensive.

General Principles of Regulation

Currently uranium mining occurs only in the Northern Territory and in South Australia. The states of Western Australia, Queensland and

Victoria have for the time being prohibited certain nuclear activities within their jurisdiction, including uranium mining. In Victoria this is legislated.

There is no uniform regulatory approach to the current operation of uranium mining in Australia, with the industry subject to Australian Government/State/Northern Territory laws and regulations regarding mining and exploration permits and rights, safety and health, environmental issues and Native Title land rights. It is also subject to export controls and Australia's safeguards policies, which are administered by the Australian Government.

To be internationally competitive the minerals industry in Australia needs an operating environment conducive to investment, growth and profitability and founded upon sound policy principles, focussing on:

- open and competitive markets,
- minimum, efficient (least cost and performance based) and only necessary government regulatory intervention (ie "**minimum effective regulation**") consistent with meeting, inter alia, occupational and public safety and environmental requirements;
- fiscal measures which are incentives for pre-competitive conduct; and
- fiscal incentives that address market failure and are non-discriminatory and non-distortionary.

Allocation of Mining Rights

Mining rights are of fundamental importance to the minerals sector. In Australia, ownership of minerals generally lies with the Crown regardless of who owns the land on the surface.

It is important that the mechanisms put in place to assign and charge for mineral rights serve as far as possible to promote the efficient exploitation of Australia's mineral resources including uranium. The Minerals Council advocates a principled approach to achieve this outcome.

Once the legal framework has been developed future intervention by government must be consistent with established principles in the interest of maintaining certainty and avoiding sovereign risk.

Adequacy of Environmental and Social Requirements

Members of the MCA are required to be a signatory to ***Enduring Value: the Australian Minerals Industry Framework for Sustainable Development***. This Framework assists companies translate the principles of sustainable development into relevant, risk-based activities at the minerals site level.

The MCA strongly supports the role of a 'social licence to operate' as a complement to a regulatory licence issued by government. At the same time, the MCA recognises the principle that ultimately decisions about whether projects should or should not proceed, and under what conditions, should remain with government.

The Australian minerals industry recognises that the present and future operations of minerals companies are linked to building and enhancing relationships with Indigenous communities. Through its *Indigenous Relations Statement*, the industry has committed to carrying out its operations and activities in ways that embody a number of fundamental values. These include the acknowledgement of, respect and support for the recognition and protection of Indigenous Australians' rights in law, interests and special connections to land and waters in Australia.

The MCA supports minerals producers being required to report any hazardous-material operation spills where they have material environmental and/or safety implications. The application of hazardous-material reporting should be consistently applied, so that there is appropriate public reporting and proper representation of operational impacts occurs.

Safeguard Arrangements

For almost 50 years, nuclear power has been used to produce electricity. Over this period, Australia has played an important international role in seeking international approaches to ensure uranium is only used for peaceful purposes. **The MCA supports Australia's Uranium Export Policy. The MCA also fully supports Australia's approach to safeguards and the stipulation in these concerning the management of Australia's exported uranium.**

Health and Safety

The Minerals Council continues to emphasise safety and health as its number one priority, and

the p**rotection of the health and safety of the workforce and the public is paramount.**

The industry's record demonstrates that radiation exposure levels associated with current operations are significantly below international standards endorsed by Australian authorities. It is recognised by government authorities that the major exposure to radiation for members of the public arises in the medical and dental sectors. The minerals industry supports uniformity in radiation protection regulation and finalisation of the new Draft Australian *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing* will be an important milestone in achieving this objective.

Materials Stewardship

The Minerals Council considers that the implementation of materials stewardship is critical to the minerals industry maximising its commitment to sustainable development.

The MCA does not normally take policy positions on the appropriateness of downstream industries' activities, though the MCA advocates a shared responsibility of all actors in the value chain or life cycle of a product in mitigating any negative environmental and/or social impacts and in optimising societal value, consistent with the MCA's position on materials stewardship.

In respect to uranium, the Minerals Council supports the interest of customer utilities in ensuring high environmental and other standards at Australian uranium mines, and also their Life Cycle Analysis endeavours. This submission draws attention to the product stewardship exercised through Australian safeguards procedures. In respect to recycling or direct disposal of spent nuclear fuel, the MCA recognises this is a decision for the Australian Government to consider.

Mechanisms to Facilitate Resource Development

The MCA supports the objectives of the **Energy Grants (Credits) Scheme** and the Australian Government's policy on this Scheme as outlined in its Energy White Paper. This explicitly recognises that the efficiency losses resulting from fuel taxes would be large, not only on the minerals sector but also on the rest of the economy *in the absence of rebate, grant or credit arrangements.*

A key issue for government consideration relates to the Australian Government's role in the provision of **pre-competitive geoscience information**. The MCA strongly supports the Minerals Exploration Action Agenda proposal of a new, national innovative geoscience program to underpin the discovery of the next generation of ore deposits in frontier areas to sustain Australia's mineral exports.

THE STRATEGIC IMPORTANCE OF AUSTRALIA'S URANIUM RESOURCES

The Minerals Council of Australia (MCA) represents Australia's exploration, mining and minerals processing industry, nationally and internationally, in its contribution to sustainable development and society. MCA member companies produce more than 85% of Australia's annual mineral output.

The MCA's strategic objective is to advocate public policy and operational practice for a world-class industry that is safe, profitable, innovative, environmentally and socially responsible, attuned to community needs and expectations.

1. GLOBAL DEMAND FOR AUSTRALIA'S URANIUM RESOURCES AND ASSOCIATED SUPPLY ISSUES

1.1 Australia's Economic Demonstrated and Reasonably Assured Uranium Resources [1]

An economy's energy requirements and its economic growth are closely related. When it is also recognised that Australia has the largest proportion of ***Economic Demonstrated Resources*** (EDR) of uranium in the world, the strategic importance of Australia's uranium resources becomes clear. Geoscience Australia (in its publication *Australia's Identified Minerals Resources*, 2004) estimates Australia had 39 per cent of the world's EDR at December 2003 followed by Canada (with 17 per cent), Kazakhstan (16 per cent) and South Africa (7 per cent).

Moreover, Australia's resources are also the lowest-cost uranium resources in the world. In fact, nearly all (96 per cent) of Australia's 702,000 tonnes of ***Reasonably Assured Resources*** [2] of uranium are recoverable at less than US$40/kg U. The spot price at 9 May 2005 was $75/kgU ($29/lb U_3O_8).

At December 2003, Geoscience Australia [3] estimates that proved and probable ore reserves made up 64 per cent of Australia's EDR and 89 per cent of Australia's EDR is accessible for mining (ie not including "resources which are inaccessible for mining because of environmental restrictions, government policies or military lands").

However, the majority of Australia's uranium deposits were discovered prior to 1975. Since then, only four further deposits have been added to the 50 or so known ones. Given that between 1983 and 1996 hardly any exploration activity was undertaken, and that a country's EDR is of course really a statement of what we know rather than what is actually there, Australia's current ERD, though large, underestimates the potential resource. Indeed, given that exploration technology has improved significantly in recent years, there is a reasonable expectation that significantly more uranium would be discovered if the latest technologies and models of how ore bodies form were applied in Australia.

In addition, approximately 97 per cent of Australia's total uranium resources in EDR are within the following six deposits:

- Olympic Dam in South Australia (the world's largest deposit);
- Ranger, Jabiluka and Koongarra in the Alligator Rivers region of the Northern Territory; and
- Kintyre and Yeelirrie in Western Australia.

Since 1983, the Olympic Dam deposit in South Australia has been the major contributor to increases in EDR. Following the first phase of a drilling program in connection with its development study, WMC Resources announced last November that total resources are now about 1.5 million tonnes of U_3O_8 (1.27 Mt uranium).

[1] See Geoscience Australia, *Australia's Identified Mineral Resources*, 2005, Appendix 2 (www.ga.gov.au) for definitions.
[2] Reasonably Assured Resources recoverable at less than US$40/kg U equate to Economic Demonstrated Resources.
[3] Geoscience Australia, op. cit., table 1, pp 9-10.

Of the six deposits mentioned above, two are in production (Olympic Dam and Ranger) and some have significant obstacles to their development. In the latter case, Kintyre and Yeelirrie cannot be developed under current WA State Government policy. In addition, Jabiluka's reserves, while accessible and included in Australia's EDR deposits, require traditional owner consent before they can be developed. It should be noted that Jabiluka's and Koongarra's proved and probable resources are included in Australia's EDR (or Reasonably Assured Resources recoverable at US$40/kg U). Both deposits are close to a national park/World Heritage Area (the leases predate and were excluded from the Kakadu National Park).

1.2 Australian Uranium Production and Exports

Australia currently has three operating uranium mines (Ranger in the Northern Territory and Olympic Dam and Beverley in South Australia) and a fourth – Honeymoon in South Australia – that is cleared to start construction having all government approvals in place. **Table 1** shows that over the past seven financial years, Australian exports of uranium oxide concentrate (U_3O_8) have averaged 8 100 tonnes per year (6 868 t U). Export receipts over the seven-year period have exceeded $2.5 billion.

Table 1: Australian Production and Export by Financial Year:

	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03	2003/04
Production (tonnes U_3O_8)	5788	6387	8217	9549	7964	9263	9536
Exports (tonnes U_3O_8)	6415	5989	8025	9722	7367	9593	9099
Export value ($m)	288	288	367	497	361	427	365
Unit value ($A/kg U_3O_8)	44.93	48.05	45.68	51.15	48.96	44.52	40.05

Note: To calculate tonnes of Uranium, divide t U_3O_8 by 1.1793
Source: Australian Bureau of Agricultural and Resource Economics, *Australian Commodity Statistics, 2004*

Table 2: Contracted Imports of U_3O_8 Concentrate from Australia, 2003

COUNTRY	ESTIMATED CONTRACTED IMPORTS
European Union (a)	2 600
India (b)	0
Japan	2 500
Mexico	0
Pakistan (b)	0
Republic of Korea	1 000
Romania	0
Russia	0
South Africa	0
Switzerland	0
Ukraine	0
USA	4 500
TOTAL	**10 600**

Note: (a) Belgium, Finland, France, Germany, Spain, Sweden and the United Kingdom.
(b) Outside of international uranium trade as not party to NPT.
Sources: Uranium Information Centre website

During 2004, Australian uranium production increased by 18.6 per cent to a new Australian record of 10 592 tonnes of U_3O_8 (8 981 t U). By way of comparison, to supply Australia's gross electricity production, 6 000 tonnes of U_3O_8/year would be needed. Australia has provided 20-25 per cent of world uranium supply from

mines over the past few years. At present only about 55% of global demand is supplied from mines with the remainder from diluted weapons grade uranium (Highly Enriched Uranium – HEU), from other stockpiles and from recycled material.

The nations that currently purchase Australia's uranium are identified in **Table 2**. All have a large commitment to nuclear power. Exports in 2004 were 9 648 tonnes U_3O_8 (8 181 t U). **Table 3** provides some information on the number of nuclear reactors operating around the world together with the proportion of electricity in each "nuclear energy" country that is supplied by nuclear energy.

As of 6 May 2005, there were 440 nuclear power plants in operation around the world with installed capacity of 366.5 GWe. There are at least another 25 plants under construction with planning also under way for a further 40 plants, with the construction centred in Asia – China, the Republic of Korea and India being the main countries. Preliminary figures suggest that world nuclear output rose by around 4 per cent in 2004 due to increased capacity and performance in the USA and Sweden in particular. [4]

Table 3: Number of Nuclear Reactors and Nuclear Energy as a percentage of total Energy Produced, by Country, 2003

COUNTRY	NO. OF REACTORS IN OPERATION	% SUPPLY OF ELECTRICITY
Argentina	2	8.6
Armenia	1	35.5
Brazil	2	3.6
Bulgaria	4	37.7
Canada	17	12.5
China	9	2.2
European Union:		
Belgium	7	55.5
Czech Republic	6	31.1
Finland	4	27.3
France	59	77.7
Germany	18	28.1
Hungary	4	32.7
Lithuania	2	79.9
Netherlands	1	4.5
Slovakia	6	57.4
Slovenia	1	40.4
Spain	9	23.6
Sweden	11	49.6
UK	23	23.7
Total EU	151	
India	14	3.3
Japan	54	25.0
Mexico	2	5.2
Pakistan	2	2.4
Republic of Korea	19	40.0
Romania	1	9.3
Russia	30	16.5
South Africa	2	6.0
Switzerland	5	39.7
Ukraine	14	45.9
USA	104	19.9
TOTAL	**433**	**17.0**

Sources: Australian Bureau of Agricultural and Resource Economics, *Australian Commodity Statistics, 2004* and International Atomic Energy Agency website.

[4] Uranium Information Centre, Newsletter, Issue 1/2005.

Australia's uranium is sold strictly for electrical power generation only, in accordance with Australia's nuclear safeguards policy, which ensures Australian uranium is not diverted from civil to military use. Australia is a party to the Non Proliferation Treaty (NPT) as a non-nuclear weapons state. Its safeguards agreement under the NPT came into force in 1974 and Australia was the first country to bring in to force the Additional Protocol in relation to the NPT - in 1997. Australia has also concluded bilateral safeguards agreements covering all customer countries for Australian uranium and the Australian Government has commenced negotiations for a bilateral treaty for safeguards with China to allow for the export of Australian uranium for nuclear power purposes to the world's fastest growing economy.

2. STRATEGIC IMPORTANCE OF AUSTRALIA'S URANIUM RESOURCES AND ANY RELEVANT INDUSTRY DEVELOPMENTS

In March 2005, the International Atomic Energy Agency increased its projection of world nuclear generating capacity in place by 2020. It now projects at least 60 new plants coming in to operation over the next 15 years, making an installed capacity of 430 GWe in place in 2020 (16.8 per cent more than current levels). The increase is based on plans and actions in China, Finland, France, India, Russia and elsewhere, together with the changed outlook due to the coming into force of the Kyoto Protocol. [5]

In 2005, some 80 600 tonnes of U_3O_8 is expected to be used by the world nuclear power industry. [6] Energy demand is expected to grow strongly and electricity demand even more strongly over the period to 2030 as China and India grow. This growth could be even stronger if there is a desire for energy security reasons to increase a country's deployment of nuclear power and/or there is increased concern over greenhouse gas emission issues associated with electricity generated from fossil fuels. Tempering the latter development is the fact that the Australian and international coal industries are investing significantly in Carbon Capture and Geological Storage and other low or near zero emission technologies.

Uranium exports are forecast to represent 21 per cent of the value of total energy exports in 2004/05. Uranium is Australia's second largest energy export in terms of energy content representing approximately 40 per cent of Australia's total energy "content" exports – or total energy exports in thermal terms.

The following developments suggest nuclear power is here to stay and to grow:

> during 2004 seven new large nuclear reactors were connected to electricity grids overseas and another was restarted after major refurbishment;

> Japan's newest and largest Advanced Boiling Water Reactor has commenced commercial operation bringing the country's number of reactors in commercial operation to 54. In addition, grid connection of the first unit of a further nuclear power plant is expected with commercial operation in October. At least three more units are expected to be built or are planned to be built at this site;

> the 20th nuclear power reactor in the Republic of Korea (and sixth Korean Standard Nuclear Power Plant) was connected to the grid in December and a further four plants are due to come on line over the period 2010-2013;

> the Republic of Korea is also establishing a joint venture in Kazakhstan to mine uranium;

> in a speech given by the President of the United States to the April 2005 National Small Business Conference, President Bush said "the first essential step toward greater energy independence is to apply technology to increase domestic production from existing energy resources. And one of the most promising sources of energy [for the USA] is nuclear power";

> public sentiment in Sweden and to an extent in the UK among others appears to be changing in favour of nuclear power according to various polls. In Sweden, which has faced the prospect of phasing out nuclear power, public opinion is now 80 per cent favourable. The change reflects public concern and media coverage related to energy security and environmental concerns, particularly regarding climate change;

> various nuclear generators in Europe and the USA are implementing capacity upgrades and extending operating licenses – one third of the current 103 US plants have had 20 year licence extensions; and

> the chief executives of 20 European Union energy companies recently called upon governments to make nuclear power a central part of their energy policies on the basis of energy security and environmental protection.

Australia is well positioned to take advantage of these electricity generation developments. Indeed, the Australian Government has emphasised the potential of further uranium exploration and export sales in

[5] Uranium Information Centre, Newsletter, Issue 2/2005.
[6] World Nuclear Association (2003) reference scenario.

accordance with established control arrangements and has commenced negotiations for a bilateral treaty for safeguards with China to allow for the export of Australian uranium for nuclear power purposes to the world's fastest growing economy.

However, Canada exports more uranium than Australia to world markets even though it has only 17 per cent of the world's Economic Demonstrated Resource (EDR) compared to 39 per cent for Australia. The reason is simply explained. It is due to the fact that Canada does not have a restriction on the number of uranium mines that are permitted to operate. Canada is completing a transition from second-generation uranium mines (started 1975-83) to new, high-grade ones, all in northern Saskatchewan. [7] It has recently issued a license for the construction of the Cigar Lake Mine – to mine the world's largest, *undeveloped* uranium deposit – with construction planned to begin later this year

Based on demonstrated safety and environmental performance of existing mines, the MCA sees no justification for restricting the establishment of further uranium mines in Australia. The Minerals Council does not have a position on whether Australia should or should not have nuclear electric power generation, preferring this to be a matter for public debate.

[7] Uranium Information Centre, *Canada's Uranium Production & Nuclear Power*, www.uic.com.au/nip03.htm

3. POTENTIAL IMPLICATIONS FOR GLOBAL GREENHOUSE GAS EMISSION REDUCTIONS FROM THE FURTHER DEVELOPMENT AND EXPORT OF AUSTRALIA'S URANIUM RESOURCES

Australia is endowed with significant, diverse and high quality energy resources. Energy needs are predominantly met through the transformation of fossil fuels due to Australia's substantial reserves of some 800 years supply of lignite in Victoria, some 290 years supply of black coal in Queensland and NSW and large natural gas resources. [8] On mainland Australia, major power stations are established close to those coal deposits. Currently, about 60 percent of South Australia's electricity and half of Western Australia's is derived from burning gas.

Internationally competitive energy prices underpin the competitiveness of Australia's merchandise exports and our fossil fuel comparative advantage has significantly shaped the development of Australia, its economic growth and living standards.

From a greenhouse perspective, nuclear power generation emits no CO_2. Therefore an attraction of nuclear energy is that every 22 tonnes of uranium (26 t U_3O_8) used saves the emission of one million tonnes of CO_2 relative to coal. [9]

Nuclear plant is characterised by high capital cost (around $ 2 000 per kilowatt) but low marginal operating costs (including fuel). In many industrialised countries, nuclear energy is cost competitive with coal-fired electricity and gas-fired generation but this is not currently the case here due to the location and high quality of our coal resources. Globally, the export of our uranium helps reduce greenhouse gas emissions in other countries to the extent the nuclear power produced replaces higher emission sources. (Industrialised countries on average generate 24 per cent of electricity from nuclear power).

The Minerals Council accepts that, in accordance with the 1992 Rio Declaration, there is sufficient scientific evidence to be concerned at the impacts of anthropogenic greenhouse gas emissions on the world's climate system although it is recognised that there are uncertainties in the science of climate change. The MCA is committed to supporting a global response to managing climate change that will deliver real greenhouse gas emissions abatement, that does not undermine Australian industry's competitiveness and promotes real business opportunities.

The MCA accepts that it is up to government and the community to review how Australia generates its electricity and to assess whether nuclear energy should make a contribution. The MCA considers the minerals industry can and must contribute directly to solutions to climate change problems within a strategic framework for collective and collaborative action for global solutions to a global problem. The Greenhouse Challenge Program forms a critical component of this collaborative approach as a partnership program between the Australian Government and Australian industry.

The MCA considers technology to be the key to achieving consistent large-scale emission reductions and improvements in energy efficiency, cleaner production and alternative energy sources to complement Australia's, indeed the world's, indisputable reliability on fossil fuels. To this end, various sectors of the minerals industry is heavily investing in Research and Development and developing a coordinated national approach to stimulating technology development relevant to climate change and building upon work overseas.

The MCA is committed to working with government to determine a suite of policies and strategies, underpinned by technology, as part of a global solution for greenhouse emissions abatement that are: demonstrably effective; cost-effective in maintaining and enhancing industry's international competitiveness; nationally consistent; non-discriminatory (including not disadvantaging "early movers" and new entrants); and comprehensive (see **Attachment A**).

[8] Council of Australian Governments, Energy Market (Parer) Review, *Final Report, November 2002*, page 5.
[9] Uranium Information Centre, *Uranium and Nuclear Energy Factsheet, November 2004.*

4. CURRENT STRUCTURE AND REGULATORY ENVIRONMENT OF THE URANIUM MINING SECTOR

4.1 General Principles of Regulation

Regulation of the mining and minerals processing industry is something that has, in general terms, been embraced and adopted by the industry as an essential element underpinning the industry's ongoing licence to operate. And uranium mining brings with it the normal regulatory issues together with special needs.

Currently uranium mining occurs only in the Northern Territory and in South Australia. The regulatory arrangements in the NT and SA vary, primarily for historical reasons associated with the Commonwealth's retention of ownership of uranium in the NT following self-government.

The states of Western Australia, Queensland and Victoria have for the time being prohibited certain nuclear activities within their jurisdiction, including uranium mining. In Victoria, exploration and mining of uranium is prohibited by an Act of Parliament. [10] The arrangements for mining in the Northern Territory and South Australia are as follows:

> **Northern Territory:** In parallel with the comprehensive environmental regulations applying to uranium mining in the NT, there have been a number of statutory bodies established to enforce the regulations and ensure independent and rigorous oversight of the measures used to protect the environment.

  The Office of the Supervising Scientist (OSS) was established by the *Environmental Protection (Alligator Rivers Region) Act 1978.* The functions of the OSS include providing advice to the Commonwealth Minister for the Environment and Heritage on environmental matters associated with uranium mining in the Alligator Rivers Region. The OSS also develops and co-ordinates research and monitoring programs and develops standards practices and procedures in relation to uranium mining aimed at protecting the environment.

  For the purposes of the Environmental Requirements (ERs) at the Ranger Mine, the NT Minister of Business, Industry and Resource Development is the designated Supervising Authority and is responsible for ensuring compliance with the environmental regulations at Ranger.

  Although the NT Minister is the Supervising Authority and holds day-to-day regulatory responsibilities under the Ranger Environmental Requirements, the Commonwealth Minister for Industry, Tourism and Resources has the primary decision-making role. The ERs provide for direct intervention by the Minister on key issues where the Commonwealth considers it appropriate. In exercising this role, the Minister takes advice from the Supervising Scientist.

> **South Australia:** The two mines producing uranium in South Australia (Olympic Dam and Beverley) are regulated principally by state authorities. The Olympic Dam mine is subject to the *Roxby Downs Indenture Act*, whereas the Beverley mine is regulated under normal mining lease arrangements.

> In addition, mining in both states is subject to Commonwealth export and environmental controls [11] and native title laws (in South Australia under Commonwealth arrangements and in the Northern Territory under its own act).

Thus, there is no uniform regulatory approach to the current operation of uranium mining in Australia, with the industry subject to Australian Government/State/Northern Territory laws and regulations regarding mining and exploration permits and rights, safety and health, environmental issues and Native Title land rights. It is also subject to export controls and Australia's safeguards policies, which are administered by the Australian Government.

[10] *Nuclear Activities (Prohibitions) Act 1983*, State of Victoria, Act No 9923/1983. Victoria has three known secondary deposits of uranium bearing minerals. These are located in the North West of the state. They are not included in Australia's EDR.

[11] Under the *Customs (Prohibited Exports) Regulations 1958* and the *Environment Protection and Biodiversity Conservation Act 1999.*

To be internationally competitive the minerals industry in Australia needs an operating environment conducive to investment, growth and profitability and founded upon sound policy principles, focussing on:

- open and competitive markets,
- minimum, efficient (least cost and performance based) and only necessary government regulatory intervention (ie "**minimum effective regulation**") consistent with meeting, *inter alia*, occupational and public safety and environmental requirements;
- fiscal measures which are incentives for pre-competitive conduct; and
- fiscal incentives that address market failure and are non-discriminatory and non-distortionary.

The adoption by the Council of Australian Governments (COAG) of 'best practice' principles to be followed when developing national standards or regulations, and guidelines for the preparation of regulatory impact statements on regulatory proposals, is supported by the MCA. These *Principles of Good Regulation* involve:

- regular review;
- flexibility of standards and regulations;
- standardisation of the exercise of bureaucratic discretion;
- minimal impact of regulation;
- minimal impact on competition; and
- compatibility with relevant international or industry accepted standards and, where possible, not restrict international trade.

To encourage consistency in regulations and limiting duplication between jurisdictions the MCA supports:

- **an ongoing process of reviewing legislation (proposed and existing) to minimise its regulatory impact and reinvigoration of COAG's role in this area;**
- **a regulatory approach which adopts the concept of "minimum effective regulation";**
- **minimisation of all regulatory costs, such as compliance and adverse side-effects; and**
- **adoption of the best regulatory approach available to address a defined problem (including an assessment being undertaken of whether self-regulation or no regulation may be more appropriate public policy choices).**

4.2 Allocation of Mining Licenses

Mining rights are of fundamental importance to the minerals sector. Before exploration and any subsequent development of any mineral deposits can take place, the nature and certainty of the right to explore, develop and mine resources needs to be established and clear to all parties.

In Australia, ownership of minerals generally lies with the Crown regardless of who owns the land on the surface. With a number of qualifications, it is generally state and territory governments that own and control mineral resources on behalf of the people they represent.

Under the various States' and Northern Territory mining acts and regulations, prospecting and mining rights are usually issued for limited durations, and are subject to forfeiture (surrender or relinquishment), to renewal or to extension at established and/or set intervals. There is usually a progression or "conversion" through various forms of title depending on the status of an area and the Australian state/territory jurisdiction concerned.

In addition, a range of other tenement changes frequently occurs. These include amalgamations, splits, partial relinquishments, change in title nominee, change in tenement conditions and so on. In addition, business structures are sometimes reorganised, involving surrender and reissue of titles.

The one common factor in the majority of such routine dealings is that **beneficial ownership interests of operators remain unaltered** although sales of mining rights also occurs. The latter can occur:

(a) via a direct sale of a right; or
(b) via a share acquisition of a company holding a right.

The systemic nature of merger and takeover activity in the industry over the long life of typical minerals projects can result in the ownership of these rights **changing beneficially** a number of times during the life of a project. In the case of uranium, the Foreign Investment Review Board has recently advised the Treasurer on two occasions regarding possible takeover of WMC Resources. [12]

In a system where the Crown owns mineral rights and mineral resources are developed by the private sector, some mechanism for transferring exploration and mining rights to private hands is needed.

Clearly the type of mineral rights (including for uranium) offered and the way they are allocated, along with the mechanisms governments adopt for charging for those rights through royalties, has a considerable influence on the efficiency, competitiveness and operation of mining and associated mineral processing activities in Australia.

It is important therefore that the mechanisms put in place to assign and charge for mineral rights for all minerals, **including uranium**, serve as far as possible to promote the efficient exploitation of Australia's mineral resources. The Minerals Council advocates a principled approach to achieve this outcome, as set out in **Attachment B**.

Once the legal framework has been developed future intervention by government must be consistent with established principles in the interest of maintaining certainty and avoiding sovereign risk.

4.3 Adequacy of Environmental and Social Requirements

4.3.1 Enduring Value Requirement

Members of the MCA are required to be a signatory to ***Enduring Value: the Australian Minerals Industry Framework for Sustainable Development***. This Framework replaced *the Australian Minerals Industry Code for Environmental Management* from 1 January 2005 and reflects the perspectives of over 900 stakeholders nationally who were consulted during its development.

Enduring Value is an effective tool for the industry in managing its social costs and impacts, both positive and negative. The Framework assists companies translate the principles of sustainable development into relevant, risk-based activities at the minerals site level.

Enduring Value operationalises the International Council for Mining and Metals' principles which are:

1. Implement and maintain ethical business practices and sound systems of corporate governance.
2. Integrate sustainable development considerations within the corporate decision-making process.
3. Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities.
4. Implement risk management strategies based on valid data and sound science.
5. Seek continual improvement of our health and safety performance.
6. Seek continual improvement of our environmental performance.

[12] Treasurer's media releases, Nos. 006/2005 and 024/2005.

7. Contribute to conservation of biodiversity and integrated approaches to land use planning.
8. Facilitate and encourage responsible product design, use, re-use, recycling and disposal of our products.
9. Contribute to the social, economic and institutional development of the communities in which we operate.
10. Implement effective and transparent engagement, communication and independently verified reporting arrangements with our stakeholders.

4.3.2 Social Licence to Operate

Key to the industry's commitment to sustainable development is the concept of a 'social licence to operate'. Simply defined, 'social licence to operate' is an unwritten social contract.

Unless a company earns its 'social licence to operate' and maintains that licence on the basis of good performance and community trust, there will undoubtedly be negative implications.

Communities might seek to block project developments; employees might choose to work for a company that they regard as a better corporate citizen; and projects might be subject to ongoing legal challenge, even after regulatory permits have been obtained, potentially halting project development.

The MCA strongly supports the role of a 'social licence to operate' as a complement to a regulatory licence issued by government. To the minerals industry 'social licence to operate' is about operating in a manner that is attuned to community expectations and which acknowledges that businesses have a shared responsibility with government, and more broadly society, to help facilitate the development of strong and sustainable local communities. At the same time, the MCA recognises the principle that ultimately decisions about whether projects should or should not proceed, and under what conditions, should remain with government.

4.3.3 Indigenous Land Access

The Australian minerals industry recognises that the present and future operations of minerals companies are linked to building and enhancing relationships with Indigenous communities. Through its Indigenous Relations Statement, the industry has committed to carrying out its operations and activities in ways that embody a number of fundamental values. These include the acknowledgement of, respect and support for the recognition and protection of Indigenous Australians' rights in law, interests and special connections to land and waters in Australia.

Consistent with these values, the minerals industry actively supports the facilitation of the capacity of Indigenous Australians to more effectively engage in the broader economy, including through wealth creation and the establishment of vibrant, diversified and sustainable regional economies. The industry works with the Native Title, land rights and cultural heritage legislation operating at the State and Commonwealth levels. The industry works to deliver mutually beneficial outcomes through Indigenous Land Use Agreements and other agreements. Through its Indigenous Relations Statement the MCA promotes the negotiation of mutually beneficial and sustainable agreements as an effective mechanism through which to achieve the intended outcomes of sustainable relationships and partnerships between minerals companies and Indigenous communities.

The object of many of these agreements is to give practical effect to the goal of promoting, supporting and facilitating Indigenous communities' engagement with minerals companies' operations, including the promotion of education, training, employment, contracting, joint ventures and local business diversification including post mining options. The industry recognises that many of these agreements have come about as a function of the existence of native title and land rights legislation. The industry considers that the legislative system could be improved for both parties. The industry emphasises the need to maintain a strong focus on sustainable, mutually beneficial relationships.

4.3.4 Environmental Assessment and Regulations

The MCA supports minerals producers being required to report any hazardous-material operation spills where they have material [13] environmental and/or safety implications. The application of hazardous-material reporting should be consistently applied, so that there is appropriate public reporting and proper representation of operational impacts occurs.

4.4 Safeguard Arrangements for the Production and Export of Australian Uranium

For almost 50 years, nuclear power has been used to produce electricity and over this period, Australia has played an important international role in seeking international approaches to ensure uranium is only used for peaceful purposes.

The MCA supports Australia's Uranium Export Policy, which is summarised as follows: [14]

> Australian uranium exports require an approval from the Minister for Industry, Tourism and Resources [15] and may only be exported for peaceful, non-explosive purposes under Australia's network of bilateral safeguards agreements, which provide for:

- coverage of uranium exports by International Atomic Energy Agency (IAEA) safeguards from the time they leave Australia (ownership may be retained by an Australian exporter for some time after the product is physically exported);
- continuation of coverage by IAEA safeguards for the full life of the material or until it is legitimately removed from safeguards;
- fallback safeguards for Australia in the event that IAEA safeguards no longer apply for any reason;
- prior Australian consent for any transfer of Australian Obligated Nuclear Material (AONM) to a third party, for any enrichment beyond 20 per cent of uranium-235 and for reprocessing of AONM; and
- physical security requirements for their transport (both on land and at sea);

> Australia retains the right to be selective as to the countries with which it is prepared to conclude safeguards arrangements;

> non-nuclear weapon state customer countries must, at a minimum, be a party to the Nuclear Non-proliferation Treaty (NPT) and accept full-scope IAEA safeguards applying to all their nuclear related activities. As of May 2005 they must also have the Additional Protocol to their safeguards agreement with the IAEA in full effect;

> nuclear weapon state customer countries must provide an assurance that AONM will not be diverted to non-peaceful or explosive uses and accept coverage of AONM by IAEA safeguards; and

> commercial contracts for the export of Australian uranium should include a clause noting that the contract is subject to the relevant bilateral safeguards arrangement.

The United Nation's IAEA safeguards system under the NPT covers three areas:

> **material accountability** (ie tracking all inward and outward transfers and the flow of materials in any nuclear facility);

> **physical security** (ie restricting access to nuclear materials at the site of use); and

> **containment and surveillance** to detect unreported movement or tampering with nuclear materials. An Additional Protocol of the IAEA as agreed in 1997, requires additional information on nuclear and nuclear related activities and greater rights of access by IAEA inspectors.

[13] Companies are required to report significant incidents as outlined in regulation. However, some companies go further and report incidents more broadly than those required by law.

[14] Sourced from the Department of Foreign Affairs and Trade website (including the Australian Safeguards & Non-Proliferation Office contribution) and the 2003/04 *Annual Report* of the Department of Industry, Tourism and Resources.

[15] The Department of Industry, Tourism and Resources administers Regulation 9 of the *Customs (Prohibited Exports) Regulations 1958*, which - among other things - provides for the issuing of export permissions for uranium.

The Australian Safeguards & Non-Proliferation Office (ASNO), within the Foreign Affairs and Trade portfolio, operates the system of bilateral safeguards applying to Australian uranium exports based on customer countries being parties to the NPT. It also administers the domestic safeguards system required by Australia's own NPT agreement with the IAEA.

In addition, ASNO:

- keeps account of nuclear material and associated items in Australia through its administration of the *Nuclear Non-Proliferation (Safeguards) Act 1987*;
- provides information to the IAEA on the small amount of nuclear material in Australia which is subject to safeguards, and on uranium exports; and
- facilitates IAEA inspections, including those under the 1997 Additional Protocol of the IAEA.

5. HEALTH AND SAFETY AND URANIUM MINING IN AUSTRALIA

The mining of uranium and use, transport and disposal of radioactive materials in Australia are regulated by state and territory authorities, and by the Australian Government. The acts and regulations governing radiation safety in Australia, including the management of radioactive waste, are consistent with international standards.

5.1 The MCA's Approach to Health and Safety

The Minerals Council continues to emphasise safety and health as its number one priority, and the protection of the health and safety of the workforce and the public is paramount.

Its leadership strategy is driven by CEOs and senior management with the aim of implementing continuous improvement principles and achieving improved safety and health performance.

The Minerals Council has identified health as a priority area and has initiated a number of projects to increase the focus on health, including the identification and promotion of practical health guidelines, incorporating health into risk assessment procedures and development of health performance indicators.

The industry is working closely with the Minerals Industry Safety and Health Centre (MISHC) in determining the practicality of tracking the health of workers in the minerals industry.

MCA Safety and Health Goal

"An Australian minerals industry **free** of fatalities, injuries and diseases."

Safety and Health Principles

- All fatalities, injuries and diseases are preventable.
- No task is so important that it cannot be done safely.
- All hazards can be identified and their risks managed.
- Everyone has a personal responsibility for the safety and health of themselves and others.
- Safety and health performance can always improve.

Safety Awareness

"The state of mind where we are constantly aware of the possibility of injury and act accordingly at all times."

5.2 Management of Occupational Exposure to Radiation at a Site Level

The safety and health of the people who work in and with the minerals sector is part and parcel of the industry's commitment to sustainable development. While this requires balancing economic, social and environmental responsibilities, the industry has emphatically determined that **there can be no trade-offs regarding safety and health**.

For this reason "improving safety and health performance" has been identified as one of the industry's 10 guiding sustainable development principles and is an integral component of *Enduring Value, the Australian Minerals Industry Framework for Sustainable Development.*

Mining operations are undertaken under the *Australian Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores*, administered by state governments, and applying to both uranium and mineral sand mining operations.

In practice, radiation protection is based on the understanding that small increases over natural levels of exposure are not likely to be harmful but should be kept to a minimum. To put this in to practice the

International Commission for Radiological Protection (ICRP) has established recommended standards of protection (both for members of the public and radiation workers) based on three basic principles:

- *Justification* – no practice involving exposure to radiation should be adopted unless it produces a net benefit to those exposed or to society generally;
- *Optimisation* – radiation doses and risks should be kept as low as reasonably achievable (ALARA), economic and social factors being taken into account; and
- *Limitation* – the exposure of individuals should be subject to dose or risk limits above which the radiation risk would be deemed unacceptable.

These principles apply to the potential for accidental exposures as well as predictable normal exposures.

Records compiled for regulatory authorities regarding employee exposure to radiation levels have consistently demonstrated exposure levels well below the legal limits established for the protection of human health. This performance is the result of companies implementing a range of exposure management techniques at the site level, including:

- dust control to minimise inhalation of gamma or alpha emitting minerals. In practice dust is the main source of radiation exposure in an open cut uranium mine and in the mill area;
- limitation of radiation exposure, through ongoing monitoring and management of time spent in contact with radioactive materials;
- strict hygiene standards for those handling uranium concentrate to ensure that any materials are not accidentally ingested or inhaled;
- ventilation of underground uranium mines to protect workers from exposure to radon gas; and
- ongoing support for epidemiological studies, in order to explore associations between exposure to ionizing radiation and disease.

The industry's record demonstrates that radiation exposure levels associated with current operations are significantly below international standards endorsed by Australian authorities.

It is recognised by government authorities that the major exposure to radiation for members of the public arises in the medical and dental sectors.

The minerals industry supports uniformity in radiation protection regulation and the Draft Australian *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing* will be an important milestone in achieving this objective.

6. LIFE CYCLE ANALYSIS AND THE NUCLEAR FUEL CYCLE

6.1 Materials Stewardship and Life Cycle Analysis

Materials Stewardship is an integrated program of action that ensures all materials, processes, goods and/or services that are produced, consumed and disposed of along the value-chain, are done so in a socially and environmentally responsible manner.

The Minerals Council considers that the implementation of materials stewardship is critical to the minerals industry maximising its commitment to sustainable development. This commitment is articulated in Principle 8 of *Enduring Value*, which requires signatories to "Facilitate and encourage responsible product design, use, re-use, recycling and disposal of our products" through:

> advancing understanding of the properties of metals and minerals and their life cycle effects on human health and the environment;

> conducting or supporting research and innovation that promotes the use of products and technologies that are safe and efficient in their use of energy, natural resources and other materials;

> developing and promoting the concept of integrated materials management throughout the metals and minerals value chain;

> providing regulators and other stakeholders with scientifically sound data and analysis regarding our products and operations as a basis for regulatory decisions; and

> supporting the development of scientifically sound policies, regulations, product standards and material choice decisions that encourage the safe use of mineral products.

Table 4: Simplified Intersection Between the Key Concepts of Materials Stewardship and Minerals Operations

Concept	Materials stewardship		
Principle	Partnerships along the value-chain		
Elements	Resource stewardship	Process stewardship	Product stewardship
Risk management	Influence	Control	Influence
Risk responsibility	Suppliers	Minerals operation	Customers
Licence implications	Licence to operate		Licence to market

Materials stewardship is based on the principle of materials (elements or compounds) in cyclic flows through the value-chain. This is different to the traditional view of the one-way production and consumption (including disposal) of a good or service. The implementation of this mind shift depends on each participant in the value-chain of a good or service taking direct responsibility for their action, and a shared responsibility with customers, suppliers and other participants along that value-chain. An example of this concept in action is the Green Lead™ project being led by BHP Billiton. This initiative is a proactive product stewardship program based on the sound management of materials and products in the lead life cycle. Its contribution to sustainability is achieved by:

> identifying the environmental, health and social impacts associated with lead and lead products;

> the introduction and maintenance of product and operational standards that promote positive impacts and continuous improvement; and

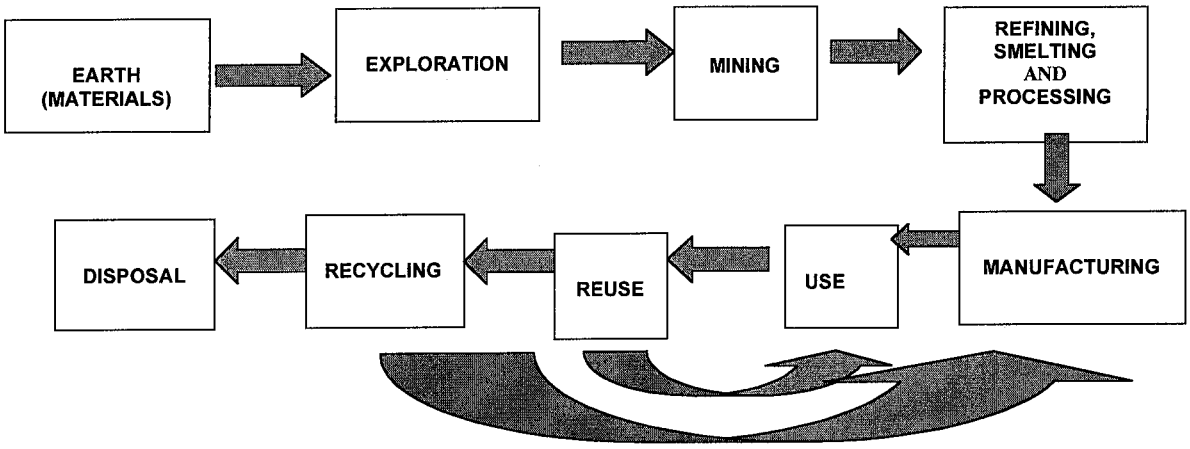
> the certification and monitoring of products and organisations that achieve the standards.

A critical tool in relation to the intersection of materials stewardship with specific commodities is Life Cycle Analysis (LCA). LCA is the process of compiling all the inputs and releases associated with a product's life cycle and undertaking an evaluation of its potential environmental and social impacts.

Inherent in this definition is that the process covers the complete value-chain from the extraction of raw materials to manufacture, re-use and disposal. LCA components include Life Cycle Inventory Analysis, Life Cycle Impact Assessment, and Life Cycle Improvement Assessment.

The stages of the mining life cycle considered in Life Cycle Analysis are outlined in **Figure 1**.

Figure 1: Materials Stewardship Value-chain for the Minerals Industry



The MCA does not normally take policy positions on the appropriateness of downstream industries' activities, though the MCA advocates a shared responsibility of all actors within the value chain or life cycle of a product in mitigating any negative environmental and/or social impacts and in optimising societal value, consistent with the MCA's position on **materials stewardship**.

In respect to uranium, the Minerals Council supports the interest of customer utilities in ensuring high environmental and other standards at Australian uranium mines, and also their LCA endeavours. This submission has already drawn attention to the product stewardship exercised through Australian safeguards procedures. In respect to recycling or direct disposal of spent nuclear fuel, the MCA recognises this is a decision for the Australian Government to consider. In respect to energy analysis aspects of LCA, the MCA draws attention to the Uranium Information Centre's paper on that subject. [16]

6.2 Naturally Occurring Radioactive Material

Naturally occurring radioactive material (NORM) is the term used to describe materials that contain radionuclides that exist in the natural environment. Long-lived radioactive elements of interest include uranium, thorium and potassium, and any of their radioactive decay products (such as radium and radon). These elements have always been present in the earth's crust and potassium within the tissues of all living species.

NORM is found in a wide variety of bulk commodities, process wastes and commercial items, sands, clays and soils, rocks, coal, groundwater, oil and gas, metal ores and non-metal minerals (including fertiliser raw materials such as rock phosphate). Metal ores that have been found to be associated with NORM include tin, tantalum, and niobium ores, rare earths, and some copper and gold occurrences. Although the

[16] Uranium Information Centre, *Energy Analysis of Power Systems*, www.uic.com.au/nip57.htm

concentration of NORM in most natural substances is low, almost any operation involving material extracted from the earth and processed can concentrate NORM.

NORM is widely distributed, and gives rise to a natural radiation background that varies by approximately two orders of magnitude over the Earth, and even more if localised mineral deposits are taken into account. This means every living species is exposed to this radiation, and in most situations this exposure is not amenable to control. There appears to be no scientific evidence relating general variations in natural background radiation to health effects.

The widespread occurrence of NORM means that many of the ores and minerals (e.g. coal, oil and gas, iron ore, bauxite, phosphate rock), commodities (e.g. water, building materials, fertiliser), products (e.g. ceramics), and devices (e.g. welding rods, gas mantles and electronic components) used by humans can contain NORM.

Activities such as mineral processing, coal burning (e.g. for electricity generation) and water treatment can modify the NORM concentrations in the products, by-products and wastes generated by these activities.

There is no uniform regulatory approach to NORM issues. Each State and Territory and the Commonwealth Government has a regulatory system for radiation protection, including the use of radioactive materials. In each jurisdiction the regulations include exemption limits for the amount of radioactive material to be regulated. While all jurisdictions have regulations that deal with radioactive wastes in general, there is no uniform approach to regulation of NORM wastes, and no national guidance on the management of these wastes.

In view of the significant variations in NORM activity, the MCA considers the focus of regulation should be on high activity materials with the majority of common materials and commercial products excluded from any regulatory regime.

6.3 Waste Management

A Draft Australian *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing* has been under development for a number of years and was the subject of a national conference organised by the Australian Radiation Protection and Nuclear Safety Agency earlier this year. [17]

The Code will focus on operational radiation protection of workers and management of radioactive waste and discharges and is being developed by Commonwealth and State jurisdictions in consultation with industry. The minerals industry supports the principle of national consistency embodied in the Code. Current waste disposal activities at operating uranium mines comply with national standards.

The MCA also fully supports Australia's approach to safeguards and the stipulation in these concerning the management of Australia's exported uranium.

[17] See www.arpansa.gov.au

7. FEDERAL MECHANISMS USED TO FACILITATE RESOURCE DEVELOPMENT

7.1 Fuel Taxation Arrangements

The minerals industry relies on the competitiveness of other industries (eg the transport, energy, manufacturing, engineering and finance sectors), to retain its international competitiveness in the face of intensely competitive, international markets for its products.

Overall, the Australian minerals sector in fact receives *negative* assistance from government. In other words, it receives no net subsidies but in fact is penalised through assistance given to non-minerals industries (eg through tariff assistance and the Mandatory Renewable Energy Target arrangements [18]).

The minerals industry is a significant direct user of fuel, which is a key input into the production of mineral products. Given the nature of international competition, this means ***the industry is highly vulnerable to taxes on diesel and other fuels.***

The *Energy Grants (Credits) Scheme Act 2003* recognises that the efficiency losses resulting from such taxes, not only on minerals but also on the rest of the economy *in the absence of rebate, grant* or credit *arrangements*, would be large.

In its wide-ranging inquiry into petroleum products, the Industry Commission [19] demonstrated that abolition of the rebate scheme would result in a net fall in Australian GDP. This is because raising taxes such as the diesel fuel excise is counter-productive, adding to the government's revenue **but subtracting a greater amount from the private sector and leaving the nation as a whole worse off**.

Retention of the Energy Grants (Credits) Scheme prevents what would otherwise amount to market failure in determining the efficient mix and level of inputs used within the minerals sector and the efficient overall allocation of resources to the sector.

The Scheme is not a subsidy. It partly refunds overpaid taxes to the minerals and other sectors. These are collected on diesel fuel consumed off-road in eligible mining operations and in dressing and/or beneficiation processes integral to the recovery of minerals or ores bearing minerals and in certain on-road activities. The partial rebate of taxes on a key business input means excise collected from miners will always exceed the rebate paid.

The rebate is consistent with other measures to minimise taxation of business inputs (for example, the GST input tax credit arrangements for business). If the electricity used by manufacturers were taxed, that would create similar efficiency losses to the tax on diesel for minerals producers as both are business inputs.

The Australian Government announced as part of its 2004 Energy White Paper *Securing Australia's Energy Future*, that it will implement a major program of reform and modernise and simplify the fuel excise system commencing on 1 July 2006 and concluding on 1 July 2015. Ultimately, fuel excise will only apply to business use of fuel in on-road applications in vehicles with a gross vehicle mass of less than 4.5 tonnes and private use of fuel in vehicles and certain off-road applications. The MCA strongly supports this initiative.

7.2 Pre-Competitive Geoscience

The minerals exploration industry and government, through the Minerals Exploration Action Agenda (MEAA), recognise that there is no single solution to the structural and cyclical impediments facing the exploration sector. Facilitating greater levels of minerals exploration and higher discovery rates is only possible if significant impediments are removed. [20]

[18] Refer to the MCA's submission on our website, www.minerals.org.au

[19] Industry Commission 1994, *Petroleum Products*, Report No. 40, Canberra, Appendix M.

[20] Four key areas have been identified. They are: access to finance, the quality and availability of pre-competitive geoscience information, access to land and access to human and intellectual capital. Industry is working cooperatively with government to implement actions in each of these areas. See www.industry.gov.au/minexpagenda for further details.

A key issue for government consideration relates to the Australian Government's role in the provision of pre-competitive geoscience information. The MEAA proposes a new national innovative geoscience program to underpin the discovery of the next generation of ore deposits in frontier areas to sustain Australia's mineral exports.

Future mineral discoveries are likely to be concealed and difficult to find and will require innovative and new approaches. The program aims to restore Australia's competitive position in national mineral exploration investment and ore discovery rates that limit Australia's capacity to take advantage of growing global metal demand driven largely by the industrialisation and urbanisation of China.

The proposal is for Geoscience Australia to lead an innovative national program that tests and applies new innovative technologies to reveal the hidden prospectivity, in high-risk but prospective frontier regions of Australia. The program will deploy the latest geophysical imaging and mapping technology and use advanced computational systems to develop robust 3D exploration models of prospective areas. This new knowledge will be available to the global mining and exploration industry through advanced information systems using the internet.

The Commonwealth program will complement the programs of the States and Northern Territory and will leverage funds from them to ensure a focus on the high-risk frontier regions that will likely be the source of Australia's resource base in the 10-25 year time frame. The program will stimulate a new generation of pre-competitive geoscience information that is essential to attract risk capital for exploration. The global mineral exploration industry will not be able to ignore the results revealed by this initiative because it will provide considerable early mover opportunities for discovery of world-class deposits.

ATTACHMENT A: MINERALS COUNCIL OF AUSTRALIA PRINCIPLES FOR MANAGING CLIMATE CHANGE

OBJECTIVES

> Australia to contribute to global action, in managing climate change, to reduce greenhouse gas emissions and develop and promote adaptation measures.

> Australia to encourage the international community through global, bilateral and unilateral measures to pursue global action to reduce greenhouse gas emissions and adapt to the impacts of climate change.

> Australia to develop a strategic national framework for greenhouse gas emission abatement and adaptation, founded in high level principles of sustainable development [21] and sound science, utilising advances in technology, recognising the interdependency of global trade and commerce, and underscoring the critical necessity for the internationalisation of effective abatement measures and commitments.

PRINCIPLES

In accordance with the 1992 Rio Declaration, there is sufficient scientific evidence to be concerned at the impacts of anthropogenic greenhouse gas emissions on the world's climate system although it is recognised that there are uncertainties in the science of climate change. The science of global warming needs to be continuously reviewed and evaluated.

Australia's strategic national framework for greenhouse gas emission abatement and adaptation, in managing climate change in a global context, to be founded in the following high-level principles:

(a) Internationalisation: pursue global action to reduce greenhouse gas emissions which is consistent with the United Nations Framework Convention on Climate Change and its ultimate objective of stabilisation of greenhouse gas concentration in the atmosphere at a level that:
- > would prevent dangerous anthropogenic interference with the climate system;
- > is within a time frame sufficient to allow ecosystems to adapt to climate change;
- > would ensure that food production is not threatened;
- > enables economic development to proceed in a sustainable manner;
- > is in accordance with common, but nationally differentiated responsibilities and respective capacities; and
- > distributes the burden equitably across the international community.

(b) Certainty: take a medium (to 2012) and long-term perspective (say, 2030).

(c) Consistency: be consistent:
- > across state, territory and federal governments to ensure their policies do not distort investment flows and create barriers to trade between States/Territories;
- > with Australia's overall economic policy of achieving high levels of sustainable economic growth; and
- > with other national policy aspirations including: population growth, international trade and investment, energy supply and demand, regional development and environmental and social responsibility.

(d) Cost effective:
- > develop cost effective actions that enhances Australian industry's competitiveness and promotes

[21] Sustainable development – defined in terms of the Bruntland Commission – "meets the needs of the present without compromising the ability of future generations to meet their own needs" – and developed around the three pillars of economic progress, social responsibility and environmental management.

business opportunities in a way that does not expose Australian industry to costs its competitors do not face;
- promote investment in eco-efficiency; [22]
- adopt commercially feasible greenhouse gas abatement options;
- promote continuous improvements by utilising as soon as commercially practicable new best practice greenhouse adaptation and abatement technologies; and
- promote relevant R&D/technology and sustainable industry development.

(e) Non-discriminatory: [23]
- not discriminate between particular projects and locations and between existing and new entrants;
- not disadvantage "early movers" in Australian industry that have implemented greenhouse gas abatement measures;
- be trade and investment neutral in a way that does not expose Australian industry to costs its competitors do not face; and
- be size and ownership neutral regarding positions reached.

(f) Comprehensive: address all greenhouse gases, all emission sources and sinks and recognise the need for developing a full suite of strategies including adaptation and abatement strategies.

(g) Equitable: distribute equitably the cost burden of emission abatement and adaptation across the community, including providers of goods and services and consumers.

(h) Market measures:
- be based as far as is practicable on appropriately designed market measures - such measures provide a more economically efficient and least costly means of achieving abatement and adaptation goals; and
- greenhouse business programs should be evaluated in a framework of market failure principles with:
  - interventions justified on market failure grounds (such as to promote R&D) aimed at improving the efficiency of competitive markets; and
  - interventions that constrain industry development - such as taxes (including the equivalent cost under emissions trading) on business inputs - being evaluated against the same market failure principles.

[22] Eco-efficiency is a strategy for the management of a company's environmental aspects. Eco-efficiency involves using environmental resources more efficiently in production processes. It means reducing, where possible, resource use, waste and pollution per unit of production and, as such, is as much about economic efficiency of operations as it is about environmental performance.

[23] Government intervention to correct market failure is not considered discriminatory.

ATTACHMENT B: MINERALS COUNCIL OF AUSTRALIA PRINCIPLES FOR ASSIGNING AND CHARGING FOR MINERAL RIGHTS

1. The process of charging for mineral rights should be transparent, equitable and developed in a manner which is consistent over time to maximise efficiency and the ability of the mining and mineral processing sector to contribute to wealth creation thereby enhancing Australian material living standards.
2. Sovereign risk (ie where governments change the rules mid-project, thus eroding the value of private property rights) seriously impact on the efficient development of mining and mineral processing as it diminishes the value of Australia's collectively owned mineral estate. To minimise the possibility of sovereign risk:
   - governments need to adopt a transparent, simple and equitable allocating system for mining rights which they and future administrations will accept as appropriate and not be tempted to intervene subsequently to change the rules; and
   - governments should bind themselves and their successors contractually to rights governing mineral developments based on this allocating system, which should take into account the different forms of rights discussed in section 4.2.
3. Key aspects of mineral rights which fundamentally affect decisions made about how explorers, prospectors and miners will go about their activities need to be transparently developed and consistently applied over time. These aspects include:
   - the nature of conditions attaching to the rights;
   - the length of tenure of the rights;
   - the security with which they are held; and
   - their tradability.
4. It is of fundamental importance that mineral rights are allocated in such a manner and subject to such conditions as permit those with the best information and expertise to be able to acquire and exercise those rights.
5. Rights over minerals should provide incentives for miners to behave as if they own the deposits they seek to discover and develop, unencumbered by conditions which effectively dictate how or when such resources, once discovered, should be mined.
6. Mineral rights should be encumbered by as few conditions as possible with the exception of the circumstances where exercising rights over one's property interferes with the rights of others – for example, the rights of land holders who make their living from exercising surface rights which may be devalued by the mineral activity, or the right of the community to a habitable environment.
7. The allocation of mineral rights should not encourage the over exploration and premature exploitation of minerals.
8. The Minerals Council seeks to ensure Australia's inherent comparative advantage in the natural endowment of resources is in fact exercised. However, it needs to be recognised that the economic viability of a project or sub-project does vary over time due to changes in mining, metallurgical, economic, marketing, technological, legal, environmental, social and government factors. These factors impact on the net present value/internal rate of return of a project/sub-project and can render previously *uneconomic* demonstrated resources economically recoverable and vice versa. Government policy regarding a state's mineral resources, their development potential and the allocation of mineral tenements needs to recognise this reality through implementing a flexible regime that does not penalise a minerals company for deferring investment in a resource because it is uneconomic.