



The Uniting Church in Australia
Synod of Victoria and Tasmania

**Submission of the
Synod of Victoria and Tasmania
Uniting Church in Australia
to**

**The Standing Committee on Industry and Resources Inquiry
into**

**The Strategic Importance of Australia's Uranium Resources
Inquiry into developing Australia's non-fossil fuel energy
industry**

"Everything is permissible" - but not everything is beneficial. "Everything is permissible" - but not everything is constructive. Nobody should seek his own good, but the good of others".
- St. Paul, First Letter to the Corinthians

"The UCA is committed to the development of environmentally benign, renewable energy sources and the cessation of uranium mining. Recognising the complexity of the issues we call on individuals, churches, industry and governments to work together to end involvement in the nuclear fuel cycle".
- Nuclear Fuel Cycle Policy, Assembly Standing Committee, Uniting Church in Australia

MAY 2005



The Uniting Church in Australia
Synod of Victoria and Tasmania

130 Little Collins St Melbourne 3000 Phone: 03 9251 5271 Fax: 03 9654 2136

Mr. Jerome Brown
The Committee Secretary
House of Representatives Standing Committee
On Industry and Resources
Suite R1 – 108
Parliament House
Canberra, ACT, 2600

27 May 2005

Dear Mr. Brown,

The Justice and International Mission Unit would like to thank the Committee for this opportunity to make a submission relating to *The Strategic Importance of Australia's Uranium Resources: Inquiry into developing Australia's non-fossil fuel energy industry*.

This submission begins by stating the position of the Uniting Church in Australia in relation to the use of Australia's uranium resources followed by some general introductory comments (a brief summary of main points) and then addresses certain areas being considered by the Standing Committee as follows:

- current structure and regulatory environment of the uranium mining sector (noting that work has been undertaken by other inquiries and reviews on these issues);
- global demand for Australia's uranium resources and associated supply issues and;
- potential implications for global greenhouse gas emission reductions from the further development and export of Australia's uranium resources.

Finally, there is an Appendix, which contains relevant national and Victorian/Tasmanian Uniting Church policy.

Yours faithfully,

Rev Sue Gormann
Moderator
Synod of Victoria and Tasmania

POSITION OF THE SYNOD OF VICTORIA AND TASMANIA

Although Australia has a sizeable amount of nuclear resources, it is not necessarily constructive to acquire and exploit these resources. Does the use of these resources serve the common good? The Synod of Victoria believes that any national benefit gained from permitting the increased exploitation of these resources is outweighed by valid moral concerns relating to the negative impact of nuclear technologies on communities and the broader natural environment.

There is little doubt that there are financial benefits derived from uranium mining. However, our natural resources come from God and must not be misused.

We know that as all is from God, we must respect creation and acknowledge that we are not its owners, but the ones who may enhance it by the use of our technology and skill, only however so as to offer it again to its creator. There is no escape from the conclusion that we are responsible, before God, for the care of creation. It is our responsibility to protect its extraordinary richness and conserve, through wise use, its resources, not least that of energy, which has become a crucial example of our power over creation and also of the potentially disastrous results of the greedy exercise of that power.¹

Briefly, the chief problems with uranium mining and nuclear energy production are as follows.

- It does not appear that nuclear energy is a long-term solution to energy consumption needs as energy production using uranium is reducing over time.
- The reality of nuclear waste constitutes a long-term problem - there is currently no universally accepted safe storage method for nuclear waste.
- There is increasing awareness of the real costs of the use of nuclear technology as a power source – due to such costs as decommissioning and waste management, the cost of nuclear energy for electricity production can actually increase over time.
- Nuclear power is neither safe nor clean and can contribute to significant health problems for people.
- Nuclear materials are extensively used for weapon production and these materials can be misused or targeted by terrorist groups.
- Contrary to popular belief, there is not an inexhaustible supply of nuclear material.
- Using nuclear energy production as a panacea for the greenhouse effect would be ultimately unsuccessful as the technology contributes to this problem and electricity production is only one part of the crisis.

Broad recommendations

The Uniting Church supports greater research, development and implementation of environmentally benign, renewable energy alternatives (eg. geothermal, solar, biomass and wind technologies) rather than an increase to uranium mining or the establishment of nuclear power plants in Australia. The expense associated with such technology is becoming less prohibitive. Over the last decade costs relating to electricity energy production utilising renewable sources has fallen when using such means as wind turbines (a 50% drop - per kilowatt-hour) and solar energy (a fall of 30%)². A commitment to the development of sustainable and efficient power sources and related technologies would be a rewarding investment, reduce greenhouse emissions and benefit all current and future Australians.

¹ Sisters of the Annunciation Monastery Ormylia Greece, *Liturgical Responsibility for the Environment*, Orthodox Peace Fellowship, Occasional Paper 11, [online], available from: http://ourworld.compuserve.com/homepages/jim_forest/Ormylia.htm [5 May 2005]

² NEA (2001) *Activities on Climate Technology: Inventory for Nuclear Generation*. <http://www.nea.fr/html/ndd/climate/acting.html> cited 12 October 2004 cited in:

A back door comeback, Nuclear energy as a solution for climate change?, 2005, Nuclear Monitor: A publication of World Information Service on Energy (WISE) and the Nuclear Information & Resource Service (NIRS), incorporating the former WISE Communique, #621 & #622, February, pg. 5

There must be full participation of Indigenous people in decision-making and harm minimisation with regard to their traditional lands concerning all aspects of the nuclear fuel cycle³.

Research and development work in clean energy technologies should receive financial support from the Australian Federal Government and, wherever possible, include technology-transfer to poorer developing countries that currently utilise nuclear power or low efficiency fossil fuel power plants as their primary energy sources. In this way these countries can pursue cleaner and safer energy options, which benefit the world environment and safety overall. This should all be part of “an internationally-agreed self-funding management plan of all fuel and wastes which guarantees the long term protection of people and the environment”⁴.

Specific recommendations for Government initiatives

The Assembly Standing Committee of the Uniting Church of Australia recommends⁵:

- direct government initiatives in developing models of energy use which minimise production of greenhouse gases and increase the use of environmentally benign, renewable resources;
- tax credits for those working towards development of renewable, environmentally acceptable alternatives, and tax penalties on those who fail to meet targets set by government for reduced pollution;
- significant increases in the provision of subsidy support for initial research, development and implementation of potentially viable alternative energies, with a view to becoming a leader in research, development and implementation of environmentally benign, renewable alternatives; and,
- targeting of government purchases towards enterprises consistent with the preceding points.

In addition, the Australian Government should seek to assist in technology transfer of cleaner technologies to developing countries to assist with their greenhouse gas reductions, especially in situations where those countries could not otherwise afford the technology in question.

All interested parties from the community (including faith and church groups), eminent scientists, industry and government should come together to work out innovative ways to develop alternatives to the use of uranium for energy production.

³ *Nuclear Fuel Cycle Policy* resolution 00.22, 2000, Assembly Standing Committee, Uniting Church in Australia

⁴ *Ibid.*

⁵ *Alternative Energy Sources*, resolution 00.22, 2000, Assembly Standing Committee, Uniting Church in Australia

THE STRATEGIC IMPORTANCE OF AUSTRALIA'S URANIUM RESOURCES INQUIRY INTO DEVELOPING AUSTRALIA'S NON-FOSSIL FUEL ENERGY INDUSTRY

TABLE OF CONTENTS

The position of the Uniting Church in Australia	6
<i>History</i>	6
<i>More recent developments</i>	7
General comments	8
<i>The problems with uranium mining and nuclear energy production</i>	8
<i>Sustainable alternatives should be pursued</i>	8
Current structure and regulatory environment of the uranium mining sector	9
Global Demand for Australia's Uranium Resources and Associated Supply Issues	9
<u>Global demand</u>	9
<i>Worldwide demand is decreasing</i>	9
<i>Investment in nuclear power is risky</i>	10
<i>Waste storage issues</i>	11
<i>Nuclear power is not safe</i>	11
<i>Nuclear power is insecure</i>	13
<u>Supply issues</u>	13
<i>Resources are finite</i>	13
Potential Implications for Global Greenhouse Gas Emission Reductions from the further Development and Export of Australia's Uranium Resources	14
APPENDIX – Uniting Church in Australia Resolutions	15
BIBLIOGRAPHY	24

The position of the Uniting Church in Australia

History

The Uniting Church in Australia has been committed to the debate and discussion concerning uranium for over two decades and has issued repeated statements on the matter in the history of the church. In 1977 the inaugural meeting of the representatives of the Uniting Church in Australia, Victorian Synod, passed a resolution which stated that:

- “We do not share a popular belief in the inevitability of the use of uranium as a source of energy. ... We do believe that Australia and the world need a thorough study of the energy problem in its totality in connection with our standards of life; and the glaring differences in the use of energy in the wealthier and poorer parts of the world. ...
- “We do not share the optimistic belief in man as a being who could overcome all the risks connected with the use of nuclear energy if he only set his mind to it. ... There are no absolute safeguards against the use of uranium and its waste products for destructive purposes. ...
- “We share the widely held anxiety in regard to the dangers of waste products ... present-day generations have no right at all to impose on future ones the enormous cost of human resources to care for the wastes and obsolete installations they leave behind them, to say nothing of the continuous risks this involves.
- “The 20th century is already, in many respects, bearing the burden of guilty decisions and attitudes of former periods of history. ...
- “The life-style of the wealthier parts of the world would only be prolonged [through the use of nuclear power generation] for a very small period of time, without helping the under-developed nations to have the bare necessities of life.
- “The uranium issue is a matter of life and death. It must not become a matter of party-politics; the nation as a whole is responsible”⁶

The Uniting Church in Australia is a member of the World Council of Churches, which made the following statement in 1990:

- “We affirm that the world, as God's handiwork, has its own inherent integrity; that land, waters, air, forests, mountains and all creatures, including all humanity, are 'good' in God's sight. The integrity of creation has a social aspect which we recognise as peace with justice, and an ecological aspect which we recognise in the self-renewing, sustainable character of natural ecosystems.
- “We will resist the claim that anything in creation is merely a resource for human exploitation. We will resist species extinction for human benefit; consumerism and harmful mass production; pollution of land, air and waters; all human activities which are now leading to probable rapid climate change; and the policies and plans which contribute to the disintegration of creation.
- “Therefore we commit ourselves to be members both of the living community of creation in which we are but one species, and of the covenant community of Christ; to be full co-workers with God, with moral responsibility to respect the rights of future generations; and to conserve and work for the integrity of creation both for its inherent value to God and in order that justice may be achieved and sustained”⁷

⁶ *Statement on the mining and export of uranium*, resolution 77.4.12, 1977, Synod of Victoria, Uniting Church in Australia. [online], available from: <http://vic.uca.org.au/jim/Resolutions/JusticeResolutionsData.html> [9 May 2005]

⁷ World Council of Churches, *Affirmation VII*, 1990, cited in Palmer, M., 2003, Introduction to Christian Environmental Initiatives, [online], available from: <http://www.goarch.org/print/en/ourfaith/article8051.asp> [5 May 2005]

In the early 1980s the Synod resolved that the church cease investment in companies involved in the nuclear fuel cycle, except those concerned solely in the area of medical research. Shares in such companies were sold and the proceeds went to a Nuclear Action Fund. The Synod later resolved that Victoria should be a nuclear-free zone.

More recent developments

In 1994 the Synod urged the Federal Government not to abandon the 'three-mine-policy'. Further to this, in 1996 Synod resolved to urge the new Coalition Federal Government to not abandon this policy of the previous (ALP) Federal Government so that National Parks, World Heritage Areas and Indigenous Australian owned land could be protected from uranium exploitation.

In 1996 the Uniting Church National Social Responsibility and Justice Committee (NSR&J) made a submission to the *Senate Inquiry into Uranium Mining and Milling*. Following that Inquiry, the NSR&J committed itself to a policy review which involved visiting mines and dialoguing with companies, traditional owners, environmentalists and the Uniting Aboriginal and Islander Christian Congress. The review was completed in 2000.

The review resulted in the Uniting Church continuing to be concerned about the considerable dangers posed by the nuclear fuel cycle. The Uniting Church was of the view that minimising greenhouse gas production would be best achieved through the development and implementation of environmentally benign, renewable sources of energy. The Uniting Church recognised that nuclear power is now a primary energy source for a number of countries. Without nuclear power most of these countries would resort to greater use of greenhouse gas producing fossil fuels, as there has not been sufficient research and development of environmentally benign, renewable sources of energy.

By some reliable estimates, greenhouse emissions are projected to rise more than 20% by 2020⁸. Almost everyone agrees that this is a serious problem that must be addressed. Where difference of opinion emerges is at the point of devising a solution. When choosing a solution for a serious problem it must be ensured that the 'cure' is not worse than the existent challenge. The Uniting Church favours the precautionary principle over the utilitarian approach to such dilemmas⁹. There are significant risks entailed in relying on the exploitation of uranium resources to counter the greenhouse effect. It is simply not good enough to accept that the health and safety of the few should be put at great risk to (possibly) benefit the many. Alternatives should be sought will not cause harm to humanity and the natural environment. At this stage, significant resources need to be invested in researching and developing such alternatives so that they can become viable. It is a matter of where Australia chooses to focus effort, "for where your treasure is, there your heart will be also"¹⁰.

The Synod of Victoria and Tasmania would like to see involvement in the nuclear fuel cycle (ie. the extraction, processing, use in nuclear power stations and nuclear weapons, transportation and disposal of waste) discontinued in Australia. However, it has been noted by the church that the immediate "cessation of uranium mining may increase the use of fossil fuels, such as coal, increasing dangers of the greenhouse effect and global warming"¹¹. This is why there is a need for all interested parties from the community (including faith and church groups), industry and government to come together to work out creative ways to end the nuclear fuel cycle as rapidly as is practically feasible.

⁸ Henry, D., *Unclean industry is no white knight*, Australian Financial Review, 22 February 2005

⁹ *Nuclear Fuel Cycle Policy*, resolution 00.22, 2000, Assembly Standing Committee, Uniting Church in Australia

¹⁰ Matthew 6:21 (New International Version)

¹¹ *Nuclear Fuel Cycle Policy*, resolution 00.22, 2000, Assembly Standing Committee, Uniting Church in Australia

The past resolutions of the National Assembly of the Uniting Church in Australia and the resolutions of the Synod of Victoria on uranium mining and the nuclear fuel cycle are given in the Appendix.

General comments

The good leave an inheritance for their children's children.¹²
- Proverbs

What follows is a brief summary of main points investigated in greater detail later in this submission.

The world's material resources should be revered and harnessed for the common good of all humanity. The use of uranium as a source of energy is not inevitable. Alternatives should be found that safeguard future generations.

The problems with uranium mining and nuclear energy production

Briefly, the chief problems with uranium mining and nuclear energy production are as follows.

- It does not appear that nuclear energy is a long-term solution to energy consumption needs as energy production using uranium is reducing over time.
- The reality of nuclear waste constitutes a long-term problem - there is currently no universally accepted safe storage method for nuclear waste.
- There is increasing awareness of the real costs of the use of nuclear technology as a power source – due to such costs as decommissioning and waste management¹³, the cost of nuclear energy for electricity production can actually increase over time.
- Nuclear power is neither safe nor clean and can contribute to significant health problems for people.
- Nuclear materials are extensively used for weapon production and these materials can be misused or targeted by terrorist groups.
- Contrary to popular belief, there is not an inexhaustible supply of nuclear material.
- Using nuclear energy production as a panacea for the greenhouse effect would be ultimately unsuccessful as the technology contributes to this problem and electricity production is only one part of the crisis.

Sustainable alternatives should be pursued

As a country we should put our energies into developing new, sustainable and environmentally-friendly technologies rather than older and unsafe methods such as nuclear power. Alternatives can and should be found that meet ethical, strategic, trade and industry objectives. Economically advantaged countries such as Australia should be willing to transfer cleaner technologies to developing countries at little or no cost to reduce global greenhouse emissions. Ultimately we are all dependent on the same atmosphere.

The Federal Government should provide tax credits to enterprises involved in developing renewable energy alternatives and directly purchase energy from such enterprises.

¹² Proverbs 13:22, cited in Stringer, R., 2000, Uranium and the Nuclear Fuel Cycle

¹³ A back door comeback, Nuclear energy as a solution for climate change?, 2005, Nuclear Monitor: A publication of World Information Service on Energy (WISE) and the Nuclear Information & Resource Service (NIRS), incorporating the former WISE Communique, #621 & #622, February, pg. 16

Current structure and regulatory environment of the uranium mining sector

Currently there are three uranium mines in Australia - Ranger in the Northern Territory, Olympic Dam and Beverley in South Australia. The Commonwealth supports a fourth to start construction: Honeymoon, in South Australia – however this project is currently on hold.

The current structure and regulatory environment of the uranium-mining sector could soon be subject to great change. The initiation of the *Inquiry into developing Australia's non-fossil fuel energy industry*, coupled with recent comments by senior members of the Australian Federal Government¹⁴, appears to signal an interest in the expansion of the uranium mining industry and perhaps even the construction of nuclear power plants in Australia. However, the construction of power plants seems unlikely if we consider that this is currently illegal (through the Commonwealth 1998 Australian Radiation Protection and Nuclear Safety Act) and general public opinion would most likely oppose this occurring. Despite this, further use of nuclear power plants is proposed as a possible solution to the problem of the greenhouse effect.

The Uniting Church opposes any relaxing of the regulatory environment and expansion of the uranium-mining sector in Australia.

Global Demand for Australia's Uranium Resources and Associated Supply Issues

Global demand

As will be outlined below, the demand for the uranium resources of Australia will reduce over time, due to:

- worldwide demand decreasing;
- investment in nuclear power being overly risky;
- waste storage issues;
- nuclear power not being safe; and,
- nuclear power being an insecure technology.

Worldwide demand is decreasing

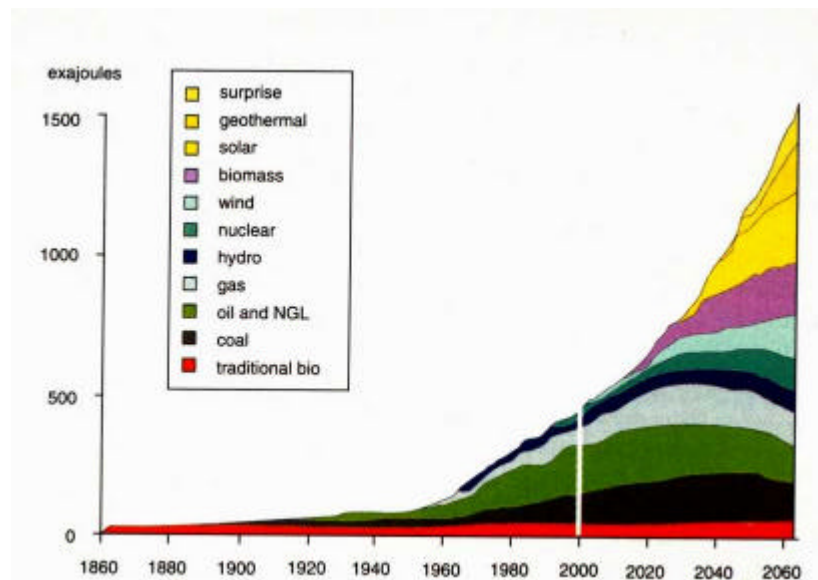


Figure 1 – projection of sustained growth, energy provision¹⁵

¹⁴ Maiden, S., 2005, *Nelson talks tax cuts and nuclear power*, The Courier Mail, 19 April, [online], available from: <http://www.thecouriermail.news.com.au/printpage/0,5942,15012163,00.html> [5 May 2005]

¹⁵ Darton, R. and Booth, R., 1999, *Energy for future generations*, The Chemical Engineer, Institution of Chemical Engineers, Issue 688, 23 September, pg. 15

Figure 1 above is from the journal of the Institution of Chemical Engineers based in the UK. It plots a projection of sustained growth patterns of primary energy provision worldwide. The greatest areas of growth are present in geothermal, solar, biomass and wind technologies. Total energy demand increases over time. Eventually nuclear growth decreases.

In 1999, Dr Mohamed El Baradei, Director General of the International Atomic Energy Agency (IAEA), stated that, “the projection is that – other things remaining as they are – [nuclear energy’s] share of global electricity production will fall from 16% today to 10% by the year 2020”¹⁶. Dr El Baradei thinks that this is due mainly to broad community concern regarding waste management and the “high initial capital costs of new plants, together with concerns about economic competitiveness”¹⁷. Considering the increasing worldwide demand for electricity fuelled by rapidly developing countries such as China (global demand will triple over the next fifty years¹⁸), the projected figure of a low 10% in 2020 is startling.

Even though new nuclear reactors are being built (predominantly in China, the Republic of Korea, Japan and Russia¹⁹),

[l]egislative nuclear power phase outs in Germany and Belgium will see 25 nuclear reactors close by 2025. Government policies favouring nuclear phase out in Spain, the Netherlands and Sweden will see a further 21 reactors closed by 2030.²⁰

The World Nuclear Industry Status Report 2004 credibly suggests that the trend to replace existing nuclear power plants globally is projecting downwards²¹. Germany has just decided to close down its second reactor²². There have been no new nuclear power plants ordered and constructed through to operation in the USA since 1973²³ or in Western Europe since 1980²⁴.

Investment in nuclear power is risky

As a result of deregulation of power and other market- and policy-based uncertainties, no nuclear power company can afford to take the financial risk of building new nuclear plants²⁵.

We note that that there are warnings that investment in nuclear power generation is not sound, as the following statement from AMP/Henderson Global Investors attests.

We believe that nuclear power and uranium industries are not financially sustainable. From an investor’s perspective, the argument that nuclear power is cost-competitive is flawed, as it does not take into consideration the significant financial outlay required to set up nuclear power

¹⁶ El Baradei, M., 1999, *Introductory statement to the 2nd Scientific Forum, 43rd Session of the International Atomic Energy Agency (IAEA)*, 27 September, [online], available from: <http://www.iaea.org/About/Policy/GC/GC43/Statements/ebsp1999n011.html> [10 May 2005]

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ *Plans for New Reactors Worldwide*, 2005, Nuclear Issues Briefing Paper 19, Uranium Information Centre, Melbourne, Australia, [online], available from: <http://www.uic.com.au/emine.htm> [9 May 2005]

²⁰ Henry, D., *Unclean industry is no white knight*, Australian Financial Review, 22 February 2005

²¹ Schneider, M., Froggatt, A., 2004, *The World Nuclear Industry Status Report 2004*, [Commissioned by] The Greens / European Free Alliance [European Parliament], pg. 28, [online], available from: http://www.greens-efa.org/pdf/documents/greensefa_documents_106_en.pdf [23 May 2005]

²² *Germany to Shut Second Nuclear Plant Weds*, 2005, Reuters AlertNet, May 11, [online], available from: <http://www.alertnet.org/thenews/newsdesk/L10262542.htm> [19 May 2005]

²³ Schneider, M., Froggatt, A., 2004, *The World Nuclear Industry Status Report 2004*, [Commissioned by] The Greens / European Free Alliance [European Parliament], pg. 12, [online], available from: http://www.greens-efa.org/pdf/documents/greensefa_documents_106_en.pdf [23 May 2005]

²⁴ Ibid., pg. 1

²⁵ Silverstein, K. [Energy Industry Analysis], cited in Ibid. pg.7

systems. Such a position is unsustainable, especially considering the industry is currently subsidised by the government with respect to waste disposal.²⁶

In general, the cost of decommissioning nuclear power plants and the liability almost always carried by governments in the case of an accident is extremely high²⁷.

The industry's legacy of cost growth, technological problems, cumbersome political and regulatory oversight, and the newer risks brought about by competition and terrorism concerns may keep credit risk too high for even (federal legislation that provides loan guarantees) to overcome²⁸.

Furthermore, it is unclear whether the high costs of future storage of radioactive materials are taken into account when evaluating financial risk. Media reports indicate that Canadian companies involved in the nuclear industry have been close to bankruptcy and have required significant subsidisation by government²⁹.

As previously stated, the practice of the UCA Synod of Victoria and Tasmania is consistent with its policy position. With minor exceptions, the Synod will not invest in any companies that are directly involved in the nuclear fuel cycle. This is a principled position and would occur whether investment in this area was highly appraised or not.

Waste storage issues

With regard to *whole of life cycle waste management*, the use of uranium for electricity generation is not an effective option due to problems with waste by-products. Nuclear waste materials remain radioactive for hundreds, or even thousands of years and integrity of storage options could not possibly be guaranteed for this length of time, "... there is no answer in sight on how or where to safeguard nuclear wastes that remain hazardous for longer than recorded civilisation"³⁰.

The Uniting Church has a "moral responsibility to respect the rights of future generations"³¹ in this matter. Future generations have a right "not to be confronted with products and wastes of earlier generations that threaten their health or require excessive expense for protection and control"³².

Nuclear power is not safe

The health risks to consumers and workers are too high.

The Rev Dr Robert Stringer in his paper, *Uranium and the Nuclear Fuel Cycle*³³, found that:

²⁶ AMP and Henderson Global Investments, 2003, *Working towards a Sustainable Future*, Quarterly Newsletter, Issue 6, July, [online], available from: http://www.ampcapital.com.au/PDF/adviser/sri/newsletter/SRI%20Newsletter_22072003.pdf?DIRECT [10 May 2005]

²⁷ *A back door comeback, Nuclear energy as a solution for climate change?*, 2005, Nuclear Monitor: A publication of World Information Service on Energy (WISE) and the Nuclear Information & Resource Service (NIRS), incorporating the former WISE Communique, #621 & #622, February, pg. 13

²⁸ Rigby, P. [Standard & Poors], UtiliPoint International, 21 June 04, cited in Schneider, M., Froggatt, A., 2004, *The World Nuclear Industry Status Report 2004*, [Commissioned by] The Greens / European Free Alliance [European Parliament], pg. 8, [online], available from: http://www.greens-efa.org/pdf/documents/greensefa_documents_106_en.pdf

²⁹ Solomon, L., National Post, December 06 2003

³⁰ Henry, D., *Unclean industry is no white knight*, Australian Financial Review, 22 February 2005

³¹ World Council of Churches, *Affirmation VII*, 1990, cited in Palmer, M., 2003, Introduction to Christian Environmental Initiatives, [online], available from: <http://www.goarch.org/print/en/ourfaith/article8051.asp> [5 May 2005]

³² *Rights of Nature and Rights of Future Generations*, Uniting Church in Australia Assembly, 1991

³³ Stringer, R., 2000, *Uranium and the Nuclear Fuel Cycle*

- At each stage of the nuclear fuel cycle low level radioactive effluents are legally allowed to be released into the air and water because of the acceptance of the ‘threshold theory’ which asserts that a human body can sustain a ‘safe’ dose of radiation.
- For a number of years some studies³⁴ have indicated that there is no such thing as a safe level of radiation exposure.
- Workers in nuclear facilities (including mines, mills and storage sites), and the public in close proximity to these facilities, are experiencing serious health problems such as cancers, leukaemia, and genetic defects.

Eminent scientists such as Professor John Gofman, Professor Emeritus of Molecular and Cell Biology in the University of California, has found that the lowest conceivable doses and dose rates of ionising radiation can cause cancer³⁵.

In their wide-ranging study of reactors, nuclear scientists Dr. Helmut Hirsch and Oda Becker and energy specialist Mycle Schneider have found that:

- “All operational reactors have very serious inherent safety flaws which cannot be eliminated by safety upgrading”
- “New reactor lines are envisaged which are heralded as fundamentally safe. However, apart from having their own specific safety problems, those new reactors would require enormous sums for their development, with uncertain outcome”
- “The average age of the world's reactors is 21 years and many countries are planning to extend the lifetime of their reactors beyond the original design lifetime. This leads to the degradation of critical components and the increase of severe incidents. The age related degradation mechanisms are not well understood and difficult to predict”
- “De-regulation (liberalisation) of electricity markets has pushed nuclear utilities to decrease safety-related investments and limit staff. Utilities are also upgrading their reactors by increasing reactor pressure and operational temperature and the burn-up of the fuel. This accelerates ageing and decreases safety margins. Nuclear regulators are not always able to fully cope with this new regime”
- “Highly radioactive spent fuel mostly is stored employing active cooling. If this fails, this could lead to a major release of radioactivity, far more important than the 1986 Chernobyl accident”
- “A major accident in a light-water reactor – the large majority of the reactors – can lead to radioactive releases equivalent to several times the release at Chernobyl and about 1000 times that released by a fission weapon. Relocation of the population can become necessary for large areas (up to 100.000 km²). The number of cancer deaths could exceed 1 million”
- “Climate change impacts, such as flooding, sea level rises and extreme droughts, seriously increase nuclear risks³⁶”.

As the World Nuclear Industry Status Report 2004³⁷ details, various studies have shown that the Chernobyl accident caused many health problems for the surrounding population, including:

- Birthrate drop – in some areas up to 44%
- Increase of disabilities – some accounts have the figure as high as 100,000 people by 2003
- Psycho-social problems – children demonstrating severe problems including depression and suicidal tendencies
- Increase of thyroid cancers

³⁴ Stringer, R., cites: [Scrader-Frechette, 1991 #6], pg. 191, C Starr, Benefit-Cost Studies in Socio-technical Systems, in Committee on Public Engineering Policy, (ed.), *Perspectives on Benefit-Risk Decision Making*, Washington, D.C., National Academy of Engineering, 1972

G. Starr and C. Whipple, “Risks of Risk Decisions”, *Science* 208, (June 6, 1980), pgs. 1114-1119

³⁵ *Highlights in Radiation Research – A Timeline*, 2005, [online], available from: <http://lowdose.tricity.wsu.edu/timeline.htm> [17 May 2005]

³⁶ Hirsch, H., Becker, O., Schneider, M., Froggatt, A., 2005, *Nuclear Reactor Hazards, Ongoing Reactor Hazards, Technology in the 21st Century*, Greenpeace International, pg. 5, [online], available from:

<http://www.greenpeace.org/international/press/reports/nuclearreactorhazards> [19 May 2005]

³⁷ *Ibid.*, pg. 27

- Hereditary inter-generational effects, including Down's Syndrome.

Nuclear energy is an inherently unsafe technology.

Nuclear power is insecure

As stated in *The position of the Uniting Church in Australia (History)* section of this submission, the church believes that humanity is unable to overcome all the risks connected with the use of nuclear energy. Historical events such as the nuclear bombing of the civilian population of Hiroshima and Nagasaki at the end of World War II, and the Chernobyl nuclear power plant disaster illustrate that there are no absolute safeguards against the use of uranium (and its waste products) for such destructive purposes.

There can be no watertight safeguarding regimes in addressing the proliferation of radioactive material, the potential diversion of Australian radioactive materials, and the potential for such materials to be used in 'dirty bombs'. The threat to international security through terrorism is a factor that should be taken into account.

Reactors cannot be sufficiently protected against a terrorist threat. There are several scenarios – aside from a crash of an airliner on the reactor building – which could lead to a major accident³⁸.

In addition to concerns about terrorism, the Uniting Church has condemned the use of nuclear weapons as sinful³⁹. The Uniting Church National Assembly has declared that:

- "ownership, use, or threatened use of nuclear, chemical and/or biological weapons is evil;
- "reliance on weapons for peace and security can never achieve a just and lasting peace. Security achieved through armament is sustained by fear of the enemy and can never see the world reconciled;
- "genuine global security will only be achieved by working for an end to the trade in illegal weapons and the arms trade, preventing the proliferation of nuclear or other weapons of mass destruction, and requiring progressive disarmament of all nations"⁴⁰.

This issue is very concerning when we take into account that varied undemocratic and/or unstable countries, such as Pakistan and North Korea, appear to have improperly used uranium resources falsely obtained for energy production (or other peaceful scientific purposes) for weapon manufacture.

The IAEA has recorded over 600 cases of illicit trafficking of radioactive sources and nuclear materials in the ten years up to 2004.⁴¹

Supply issues

Resources are finite

Even though Australia is well positioned to supply a substantial proportion of nuclear materials to the world, it should be noted that world supply of uranium is finite.

³⁸ Hirsch, H., Becker, O., Schneider, M., Froggatt, A., 2005, *Nuclear Reactor Hazards, Ongoing Reactor Hazards, Technology in the 21st Century*, Greenpeace International, pg. 27, [online], available from:

<http://www.greenpeace.org/international/press/reports/nuclearreactorhazards> [19 May 2005]

³⁹ *Statement on Nuclear Deterrence, Disarmament and Peace*, ASR&JC 1988, p. 6 cited in Stringer, R., July 1999, revised 2000, Uniting Faith and Justice, a bibliographic essay: 21 years of the Uniting Church in Australia's Social Justice and Human Rights: 1977 – 1998

⁴⁰ *Uniting for Peace*, resolution 03.19.02, 2002, Tenth Assembly, Uniting Church in Australia

⁴¹ ABC TV interview with Mohamed El Baradei, 11 November 2004 at <http://www.abc.net.au/lateline/content/2004/s1240725.htm>

After reviewing the work of Van Leeuwen and Smith from the Centre for Energy in Delft, Dr. Alan Roberts from Monash University estimates that if electricity output was solely sourced from nuclear reactors, supply would last for just under nine years (or up to thirty years if newer speculative resources were to prove useable)⁴². Some estimates based on different assumptions project supply availability for a much longer period than this. However, most agree that supply is finite. Taking this into account, it would be better for Australia to focus on developing utilisation of renewable sources of energy.

Potential Implications for Global Greenhouse Gas Emission Reductions from the further Development and Export of Australia's Uranium Resources

The utilisation of fossil fuel contributes to the global greenhouse problem and is part of the nuclear fuel cycle. Nuclear power is not emission-free. Part of the answer to these problems is to find out ways of increasing electrical energy efficiency, which is “nearly seven times more effective than nuclear power for abating CO₂ emissions”⁴³. In any case, the issue of electricity production is just one part of the problem – “others include transport, heating, agriculture, the production of cement and deforestation”⁴⁴.

The emissions from electricity generation vary

from one country to another. It's about 20% in the 15 European Union countries ... it is always, to my knowledge, everywhere except Victoria, a relatively small fraction of the pollution ...⁴⁵.

It has been reported that in Victoria coal-fired electricity generation causes a high 55% of the state's total emissions⁴⁶. Globally, emissions from electrical networks would probably be less than 39% of total emissions⁴⁷.

These levels of emission are significant. However it is important to remember that “California has 16% emitted by electricity generation, 58% from transport, from cars and trucks, which is more than 3.5 times as much as the electricity generation”⁴⁸.

The greenhouse effect can be linked to increasingly volatile weather conditions globally. These weather conditions can put nuclear generation facilities at great risk. There have been some serious examples of facilities being damaged and made unsafe due to sea-level rise, flooding, storms and hurricanes⁴⁹.

A more holistic approach to combating greenhouse is required. Safe and clean alternatives to using fossil fuels for electricity generation must be found.

⁴² Roberts, A., 2005, *The Phantom Solution: Climate change and nuclear power*, Arena Journal, No. 23, Monash University

⁴³ Keppin, B., and Kats, G., Greenhouse Warming: Comparative Analysis of Nuclear and Efficiency Abatement Strategies, Energy Policy 16, No. 6, December 1998, pg. 538-561 cited in Stringer, R., 2000, Uranium and the Nuclear Fuel Cycle

⁴⁴ *A back door comeback, Nuclear energy as a solution for climate change?*, 2005, Nuclear Monitor: A publication of World Information Service on Energy (WISE) and the Nuclear Information & Resource Service (NIRS), incorporating the former WISE Communiqué, #621 & #622, February, pg. 10

⁴⁵ Roberts, A., 2005, *Nuclear Power and Climate Change*, ABC Radio National: The National Interest [interview], [online], available from: <http://www.abc.net.au/m/talks/natint/stories/s1345468.htm> [27 May 2005]

⁴⁶ *The Dirty State We're In*. The Age, Melbourne, Feb. 14 2005 cited in Roberts, A., 2005, *The Phantom Solution: Climate change and nuclear power*, Arena Journal, No. 23, Monash University

⁴⁷ *International Energy Agency (IEA)*, 2001 cited in Roberts, A., 2005, *The Phantom Solution: Climate change and nuclear power*, Arena Journal, No. 23, Monash University

⁴⁸ Roberts, A., 2005, *Nuclear Power and Climate Change*, ABC Radio National: The National Interest [interview], [online], available from: <http://www.abc.net.au/m/talks/natint/stories/s1345468.htm> [27 May 2005]

⁴⁹ Hirsch, H., Becker, O., Schneider, M., Froggatt, A., 2005, *Nuclear Reactor Hazards, Ongoing Reactor Hazards, Technology in the 21st Century*, Greenpeace International, pgs. 115-126, [online], available from: <http://www.greenpeace.org/international/press/reports/nuclearreactorhazards> [19 May 2005]

APPENDIX - Uniting Church in Australia Resolutions on Uranium Mining and the Nuclear Fuel Cycle



Nuclear Fuel Cycle Policy *Assembly Standing Committee, Uniting Church in Australia*

Adopted in Resolution 00.22

Key Statement

The UCA is committed to the development of environmentally benign, renewable energy sources and the cessation of uranium mining. Recognising the complexity of the issues we call on individuals, churches, industry and governments to work together to end involvement in the nuclear fuel cycle.

Preamble

Having regard for our obligation to God's creation, the values of our Church, and our role as an important part of civil society, the Uniting Church in Australia believes that the nuclear fuel cycle⁵⁰ continues to present unique questions for all Australians. There are extraordinary hazards that need to be addressed and overcome. We are concerned about the risks to human health, health of the environment, the generation of toxic wastes and the production of weapons of mass destruction. The Uniting Church knows that the cessation of uranium mining may increase the use of fossil fuels, such as coal, increasing dangers of the greenhouse effect and global warming.

Principles

Aware of the complexity of the issues, but determined to work for a healthier and safer world the Uniting Church is committed to:

- (1) the need for the world to move to end the use of uranium through greater energy efficiency and research, development and implementation of environmentally benign, renewable alternatives;
- (2) risk assessment in relation to the nuclear fuel cycle based primarily on the precautionary principle⁵¹, rather than the utilitarian principle⁵²;

⁵⁰ Extraction, processing, use in nuclear power stations and nuclear weapons, transportation and disposal of waste.

⁵¹ "The precautionary principle has been defined as 'when an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically'. It includes taking action in the face of uncertainty; shifting burdens of proof to those who create risks; analysis of alternatives to potentially harmful activities; and participatory decision-making methods." (Implementing the Precautionary Principle, Carolyn Raffensperger and Joel Tickner, for Eco-Compass).

⁵² "Utilitarianism (1863) was the effort of John Stuart Mills to state and defend the view that 'the greatest happiness of the greatest number' should be the aim of personal and legislative conduct." (John Stuart Mill Institute). It is a principle of philosophy. When applied to risk assessment it means that those in least numbers, with least voice, those already marginalised will continue to be marginalised. With regard to the nuclear fuel cycle those marginalised would be placed at the most risk more of the time for the 'greater good' of the many.

- (3) the development of models for change in energy use and medical technologies to environmentally benign, renewable sources, which minimise greenhouse emissions;
- (4) an internationally-agreed self-funding management plan of all fuel and wastes which guarantees the long term protection of people and the environment;
- (5) transparency in all decision-making and reporting by government and mining companies with regard to all aspects of the nuclear fuel cycle;
- (6) the 1988 statement of the UCA declaring that “the production, possession, threatened use or use of nuclear weapons is a sin”⁵³ against God and humanity;
- (7) the principles embodied in the World Alliance of Reformed Churches document Rights of Future Generations, Rights of Nature⁵⁴;
- (8) the participation of churches and ecumenical bodies, nationally and internationally, in calling for the responsible care and use of God’s creation, and seeking a nuclear free world;
- (9) solidarity with Indigenous peoples in their struggle for full participation in decision-making and harm minimisation in their traditional lands regarding all aspects of the nuclear fuel cycle;
- (10) welcome and support any actions by government, mining companies and other interested parties to negotiate in good faith with Indigenous peoples.

⁵³ *Statement on Nuclear Deterrence, Disarmament and Peace*, UCA, 1988, p. 7

⁵⁴ *Rights of Future Generations, Rights of Nature*, Proposal for enlarging the Universal Declaration of Human Rights, Ed. Lukas Vischer, Studies from the World Alliance of Reformed Churches. 1990.



Alternative Energy Sources
Assembly Standing Committee, Uniting Church in Australia

It was resolved to:

Resolution 00.22.10-11 [extracts]

welcome the steps taken by government to encourage business enterprises to explore alternative energy sources through programs such as “the Greenhouse Gas Abatement Programme”, the “Incentive to Switch to Lower Sulphur Fuels” and the 100% excise credit for rail transport;

call on government to initiate a more active program including:

- direct government initiatives in developing models of energy use which minimise production of greenhouse gases and increase the use of environmentally benign, renewable resources;
- tax credits for those working towards development of renewable, environmentally acceptable alternatives, and tax penalties on those who fail to meet targets set by government for reduced pollution;
- significant increases in the provision of subsidy support for initial research, development and implementation of potentially viable alternative energies, with a view to becoming a leader in research, development and implementation of environmentally benign, renewable alternatives;
- target government purchases towards enterprises consistent with these policy objectives;

Synod of Victoria Resolutions

What follows are resolutions of Annual Synod meeting of representatives of the Uniting Church across Victoria relating to uranium mining.

1977

77.4.12 The Synod resolved:

(a) That the first Synod of the Uniting Church in Victoria does not feel free to be silent about a most important issue which is now before the Australian nation: the matter of the mining and exporting of uranium.

- (i) Christ's disciples are called to be "the salt of the earth" and a "city on a mountain" by what they are among themselves and also in their concern for the world. They have heard Christ's commandment to love God and their neighbour and they are called to obey Him in His Lordship over God's creation and his protest against all forces that endanger and damage it.

They look forward to a new heaven and a new earth, indeed a new universe that glorifies God's name, a universe where all that is receives God's gracious gifts in harmony, abundance, safety and security.

- (ii) In this context the Uniting Church feels constrained to express concern about the policy of the Australian government to mine and export uranium.

The Uniting Church wants to speak to its own membership and to the nation, to all men and women, irrespective of their political affiliation.

1. We do not share a popular belief in the inevitability of the use of uranium as a source of energy. Many people argue that the world has entered the nuclear age - that a number of nations are mining and exporting uranium, making handsome profits and also serving the world in its energy needs. They argue that we in Australia cannot put the clock back; that we should not stay behind in the development of the world. We do not share such a belief. We do believe that Australia and the world need a thorough study of the energy problem in its totality in connection with our standards of life; and the glaring differences in the use of energy in the wealthier and poorer parts of the world.

2. We do not share the optimistic belief in man as a being who could overcome all the risks connected with the use of nuclear energy if he only set his mind to it. We have witnessed in our century that man can become a dangerous monster, led by demonic forces to destroy humanity. There are no absolute safeguards against the use of uranium and its waste products for destructive purposes.

3. We share the widely held anxiety in regard to the dangers of waste products - plutonium and others. We feel that present-day generations have no right at all to impose on future ones the enormous cost of human resources to care for the wastes and obsolete installations they leave behind them, to say nothing of the continuous risks this involves.

The 20th century is already, in many respects, bearing the burden of guilty decisions and attitudes of former periods of history. We must not increase that burden.

The life-style of the wealthier parts of the world would only be prolonged for a very small period of time, without helping the under-developed nations to have the bare necessities of life.

- (iii) The above mentioned concerns are only a few of the many reasons which make us believe that it is the primary duty of the Australian Government to continue studying the use and possible mis-use of uranium as a source of energy.

We plead for the Government to pause again on the decision to mine and export uranium. It should try to involve the whole nation at all levels in the study and discussion of these problems.

The uranium issue is a matter of life and death. It must not become a matter of party-politics; the nation as a whole is responsible.

In this context we believe in the right of every man and woman, young and old, to express an opinion in this matter in public. Endeavours to limit or suppress public demonstrations can only create explosive situations. "Children should obey their parents, but parents should not provoke their children to anger".

- (b) That members of the Synod and members of the Uniting Church in Victoria be requested:
 - (i) to study material produced by the Australian Council of Churches, the Commission for World Mission, and the Northern Synod concerning the ethical and social issues involved; the effect on Aboriginal communities and the future implications of the decision to mine and export uranium.
 - (ii) to respond by continuing participation in the public debate, and as individuals to take appropriate action according to the request of the Australian Council of Churches, the Commission for World Mission and the Northern Synod.
 - (iii) to responsibly review our use of personal and church resources and lower our standard of living;
 - (iv) to convey to the Government that we believe no mining of uranium should take place in Australia for a five year period from the publication of the second part of the Fox report.
- (c)
 - (i) That resolutions (a) to (b) be forwarded to the leaders of all Federal political parties, and to the Premiers of the various States, and their responses be sought in writing;
 - (ii) that the replies received be published in "Church and Nation" with the consent of the Editor.

1978

78.5.11 The Synod resolved:

- (a) To reaffirm the statement of the 1977 Synod on the mining and export of uranium.
- (b) To remind the Federal Government of the recommendations of the first report of the Ranger Uranium Environmental Inquiry, viz.
 - (i) to take immediate steps to institute full and energetic programs of research and development into alternative energy resources; and
 - (ii) that there be a national program for energy conservation.
- (c) To request the Government to implement these resolutions as a matter of urgency.

1979

79.26 It was resolved that the Assembly:

- (a) receive the statement on uranium;
- (b) print the statement; and
- (c) refer the statement to Synods and Presbyteries.

1981

81.4.6 The Synod resolved:

- (a) That the Board of Property and Finance act as follows:
 - (i) By Synod 1982, dispose of any shares, debentures, stock or notes or any other marketable security held by the Board, being an investment of the Common Fund or the specific investment of any other fund held by the Board, which represent an investment in any company whereby any part of the business of that company as at October 1981, is engaged in the actual mining of uranium or a substantial part of the business of that company as at October 1981, is involved in the processing, export, transport, transshipment or handling of uranium or its derivatives.
 - (ii) To report to the Standing Committee by June 1982, the action being taken pursuant to the above resolution including any capital profits or losses which may have resulted from its actions, and whether the board considers that all companies believed to be involved in the uranium industry, and whose marketable securities were held by the Board, are being suitably researched and the necessary action being taken in terms of the above resolution.
 - (iii) To refrain immediately from the purchase of new securities, extensions to present holdings, or option of rights to any marketable security in any company involved in the uranium industry as defined in resolution (i).

- (b) That any company, as defined in resolution (i), whose sole business involvement in the handling of uranium, or its derivatives, is in the area of medical research or for medical purposes, be exempted from action under resolution (a).
- (c)
 - (i) That a Task Group of seven persons be established to carry out an investigation of all companies whose marketable securities are held within the Common Fund or any other fund held by the Board, to ascertain their involvement through financing or secondary investment or otherwise in any way whatsoever in any company which is deemed to be involved with the uranium industry, and to bring a report of such third party involvement in the uranium industry to Synod 1983.
 - (ii) That the Task group comprise three members appointed by the Property and Finance, one of whom shall act as Convener, two members appointed by the Division of Resources, and two members appointed by the Division of Social Justice.
- (d) To encourage all members, agencies, institutions of the Uniting Church to study their involvement through financial investment in the uranium and nuclear industries, in the light of the decisions of this Synod, and to act accordingly.
- (e) To urge strongly the Federal Government to review and reconsider its stated intention of transferring the control and operation of the uranium and nuclear industries to individual State Governments of this country.

1982

82.56 It was resolved that the Assembly:

- (a) note the following resolution adopted by the Standing Committee of the Synod of Victoria:
 - (i) that an amount equivalent to the profits of the sale of E.R.A. shares in November, 1980, be transferred to the Commission on Social Responsibility for establishment of a Nuclear Action Fund;
 - (ii) that the terms of reference for this fund be as follows:

Grants to be supplied to projects of an educational nature on the issues of the Nuclear Disarmament Debate and the Nuclear Fuel Cycle including the debate on Uranium Mining in Australia and support for Aboriginal people most directly affected by uranium mining;
 - (iii) that grants from the fund be available to both Church and community groups;
 - (iv) to request the Commission on Social Responsibility to appoint a committee, comprising no fewer than three persons, to authorize the disbursements from this fund, which is to be held within the Assembly Fund, and to report annually to the Commission;
- (b) establish the Fund as proposed and request the Commission to:

- (i) encourage further contributions from Synods and individuals; and
- (ii) operate the Fund in accordance with the above resolution.

1982

82.2.8 The Synod resolved:

To support the concept of declaring Victoria a zone free of the mining of uranium, the processing of fissionable material, the storage, transport and waste disposal of fissionable material, and inform the Victorian and Federal Governments accordingly.

1982

82.5.3 The Synod resolved:

- (a) To endorse the action of the Task Group in carrying out its work under the minutes of 1981 Synod.

The identification of eight levels of involvement as follows:

- (i) Companies solely engaged in uranium mining;
- (ii) Companies directly engaged in uranium mining as part of their total operations;
- (iii) Companies holding a substantial or controlling interest in a company in categories (i) and (ii);
- (iv) Companies providing services to companies involved in uranium mining e.g. banking, insurance, transport;
- (v) Companies supplying capital equipment to companies involved in uranium mining;
- (vi) Companies having an indirect involvement with the uranium industry not identified in any one of the above categories;
- (vii) Companies providing ancillary services to communities established at uranium centers;
- (viii) Companies with no identifiable involvement in the uranium industry.

The classification of companies within the Synod Portfolio according to the above levels of involvement.

- (b) That the Synod cease to hold shares in companies as described in the first three categories listed above:
 - (i) Companies engaged solely in uranium mining;

- (ii) Companies directly engaged in uranium mining as part of their total operations;
 - (iii) Companies holding a substantial or controlling interest in a company in categories (i) and (ii).
- (c) That the task of reviewing the Uniting Church portfolio be the responsibility of the Investment Review Committee established by the Resources Commission.
- (d) That the Task Group be thanked and discharged.

1985

85.78.1/3 The Assembly resolved:

- (a) To receive the Statement on Uranium as a basis for discussion.
- (b) To request the Commission on Social Responsibility to print the Statement, without the final paragraph on Disobedience, and appropriate study material.
- (c) To encourage Congregations, Parishes and Presbyteries to study the Statement, to initiate more informed debate in the community, and to keep the Commission on Social Responsibility informed of their work on this issue.

1994

94.4.2.11/12 The Synod resolved:

To reaffirm its opposition to the mining and export of uranium.

To urge the Federal Government to resist attempts to abandon the existing "three mine" policy of the Australian Labor Party so that new mines may be allowed to operate.

1996

96.6.4.13 The Synod resolved:

To inform the Federal Government of its disappointment and opposition to their decision to abandon the existing three mine policy of the previous Federal Government in order to establish new uranium mines in areas including National Parks, World Heritage Areas and aboriginal owned land.

BIBLIOGRAPHY

- A back door comeback, Nuclear energy as a solution for climate change?*, 2005, Nuclear Monitor: A publication of World Information Service on Energy (WISE) and the Nuclear Information & Resource Service (NIRS), incorporating the former WISE Communique, #621 & #622, February
- Alternative Energy Sources*, resolution 00.22, 2000, Assembly Standing Committee, Uniting Church in Australia
- AMP and Henderson Global Investments, 2003, *Working towards a Sustainable Future*, Quarterly Newsletter, Issue 6, July, [online], available from: http://www.ampcapital.com.au/PDF/adviser/sri/newsletter/SRI%20Newsletter_22072003.pdf?DIRECT [10 May 2005]
- Australia's Uranium Mines*, 2005, Uranium Information Centre, Melbourne, Australia, [online], available from: <http://www.uic.com.au/emine.htm> [9 May 2005]
- Caldicott, H., 2005, *Nuclear power is the problem, not a solution*, The Australian, 13 April, [online], available from: http://www.theaustralian.news.com.au/common/story_page/0,5744,12835747%255E12332,00.html [9 May 2005]
- Darton, R. and Booth, R., 1999, *Energy for future generations*, The Chemical Engineer, Institution of Chemical Engineers, Issue 688, 23 September
- The Dirty State We're In*, 2005, The Age, Melbourne, February 14 cited in Roberts, A., 2005, The Phantom Solution: Climate change and nuclear power, Arena Journal, No. 23, Monash University
- El Baradei, M., 1999, *Introductory statement to the 2nd Scientific Forum, 43rd Session of the International Atomic Energy Agency (IAEA)*, 27 September, [online], available from: <http://www.iaea.org/About/Policy/GC/GC43/Statements/ebsp1999n011.html> [10 May 2005]
- Germany to Shut Second Nuclear Plant Weds*, 2005, Reuters AlertNet, May 11, [online], available from: <http://www.alertnet.org/thenews/newsdesk/L10262542.htm> [19 May 2005]
- Henry, D., *Unclean industry is no white knight*, Australian Financial Review, 22 February 2005
- Highlights in Radiation Research – A Timeline*, 2005, [online], available from: <http://lowdose.tricity.wsu.edu/timeline.htm> [17 May 2005]
- Hirsch, H., Becker, O., Schneider, M., Froggatt, A., 2005, *Nuclear Reactor Hazards, Ongoing Reactor Hazards, Technology in the 21st Century*, Greenpeace International, [online], available from: <http://www.greenpeace.org/international/press/reports/nuclearreactorhazards> [19 May 2005]
- International Energy Agency (IEA)*, 2001 cited in Roberts, A., 2005, The Phantom Solution: Climate change and nuclear power, Arena Journal, No. 23, Monash University
- Keppin, B., and Kats, G., *Greenhouse Warming: Comparative Analysis of Nuclear and Efficiency Abatement Strategies*, Energy Policy 16, No. 6, December 1998, pg. 538-561 cited in Stringer, R., 2000, Uranium and the Nuclear Fuel Cycle

Maiden, S., 2005, *Nelson talks tax cuts and nuclear power*, The Courier Mail, 19 April, [online], available from: <http://www.thecouriermail.news.com.au/printpage/0,5942,15012163,00.html> [5 May 2005]

NEA (2001) *Activities on Climate Technology: Inventory for Nuclear Generation*. <http://www.nea.fr/html/ndd/climate/acting.html> cited 12 October 2004 cited in:

A back door comeback, Nuclear energy as a solution for climate change?, 2005, Nuclear Monitor: A publication of World Information Service on Energy (WISE) and the Nuclear Information & Resource Service (NIRS), incorporating the former WISE Communique, #621 & #622, February, pg. 5

Nuclear Fuel Cycle Policy, resolution 00.22, 2000, Assembly Standing Committee, Uniting Church in Australia

O'Rourke, 2004 and Storm van Leeuwen & Smith, 2004 cited in *A back door comeback, Nuclear energy as a solution for climate change?*, 2005, Nuclear Monitor: A publication of World Information Service on Energy (WISE) and the Nuclear Information & Resource Service (NIRS), incorporating the former WISE Communique, #621 & #622, February, pg. 12

Plans for New Reactors Worldwide, 2005, Nuclear Issues Briefing Paper 19, Uranium Information Centre, Melbourne, Australia, [online], available from: <http://www.uic.com.au/emine.htm> [9 May 2005]

Rights of Future Generations, Rights of Nature, Proposal for enlarging the Universal Declaration of Human Rights, Ed. Lukas Vischer, Studies from the World Alliance of Reformed Churches. 1990.

Rights of Nature and Rights of Future Generations, Uniting Church in Australia Assembly, 1991

Roberts, A., 2005, *Nuclear Power and Climate Change*, ABC Radio National: The National Interest [interview], [online], available from: <http://www.abc.net.au/rn/talks/natint/stories/s1345468.htm> [27 May 2005]

Schneider, M., Froggatt, A., 2004, *The World Nuclear Industry Status Report 2004*, [Commissioned by] The Greens / European Free Alliance [European Parliament], [online], available from: http://www.greens-efa.org/pdf/documents/greensefa_documents_106_en.pdf [23 May 2005]

[Scrader-Frechette, 1991 #6], pg. 191 cited in Stringer, R., 2000, Uranium and the Nuclear Fuel Cycle

Sisters of the Annunciation Monastery Ormylia Greece, *Liturgical Responsibility for the Environment, Orthodox Peace Fellowship*, Occasional Paper 11, [online], available from: http://ourworld.compuserve.com/homepages/jim_forest/Ormylia.htm [5 May 2005]

St John of Damascus, *On the Holy Images*, cited in Sisters of the Annunciation Monastery Ormylia Greece, *Liturgical Responsibility for the Environment, Orthodox Peace Fellowship*, Occasional Paper 11, [online], available from: http://ourworld.compuserve.com/homepages/jim_forest/Ormylia.htm [5 May 2005]

C Starr, Benefit-Cost Studies in Socio-technical Systems, in Committee on Public Engineering Policy, (ed.), *Perspectives on Benefit-Risk Decision Making*, Washington, D.C., National Academy of Engineering, 1972 cited in Stringer, R., 2000, Uranium and the Nuclear Fuel Cycle

G. Starr and C. Whipple, "Risks of Risk Decisions", *Science* 208, (June 6, 1980), pgs. 1114-1119 cited in Stringer, R., 2000, *Uranium and the Nuclear Fuel Cycle*

Statement on Nuclear Deterrence, Disarmament and Peace, ASR&JC 1988, p. 6 cited in Stringer, R., July 1999, revised 2000, *Uniting Faith and Justice*, a bibliographic essay: 21 years of the Uniting Church in Australia's Social Justice and Human Rights: 1977 – 1998
Stringer, R., 2000, *Uranium and the Nuclear Fuel Cycle*

Statement on the mining and export of uranium, resolution 77.4.12, 1977, Synod of Victoria, Solomon, L., *National Post*, December 06 2003

Sweeney, D., 2003, *Wrong Way, Go Back*, Habitat [supplement], Australian Conservation Foundation, August

Uniting for Peace, resolution 03.19.02, 2002, Tenth Assembly, Uniting Church in Australia

World Council of Churches, *Affirmation VII*, 1990, cited in Palmer, M., 2003, *Introduction to Christian Environmental Initiatives*, [online], available from:
<http://www.goarch.org/print/en/ourfaith/article8051.asp> [5 May 2005]

Biblical passages

- Proverbs 13:22
- Matthew 6:21
- 1 Corinthians 10:23-24