

NUCLEAR POWER

Motion

Resumed from 31 May on the following motion moved by Hon Ken Travers -

That this house -

- (1) rejects nuclear power as a viable alternative for addressing climate change on the basis that -
 - (a) it is too expensive compared to alternative strategies;
 - (b) it does not address the problem quickly enough;
 - (c) it produces waste for which there is no viable means of storage;
 - (d) it assists in the proliferation of nuclear weapons and increases the risk of terrorism; and
 - (e) there are only limited sources of high-grade resources identified;
- (2) opposes a nuclear waste storage facility being developed in Western Australia due to there being numerous technical and social issues that have not been addressed and will transfer significant risks to future generations; and
- (3) believes that the mining of uranium will significantly increase the pressure for a waste storage facility to be introduced in Western Australia, and therefore supports the government ban on the mining of uranium.

HON KEN TRAVERS (North Metropolitan) [2.05 pm]: It is amazing how quickly this issue moves as we continue to debate it from where we left off a couple of weeks ago. Members will recall that previously I referred to the cost of decommissioning nuclear power plants, and said that often the economics of nuclear power is not considered. I mentioned that the estimated cost of decommissioning nuclear facilities in the United Kingdom was £70 billion. Since I previously spoke to the motion in this house, according to the English Chancellor Gordon Brown, that figure has risen to £90 billion pounds. This sharp increase highlights that we do not know the true cost of nuclear power. When people talk about the economics of nuclear power, my view is that they underestimate the cost of decommissioning nuclear facilities. It is evident that the initial costings were not correct. Since the process of costing the decommissioning of nuclear plants in the UK began, the estimated cost has increased from £56 billion to £70 billion and now it is up to £90 billion. That figure is beyond the comprehension of members in this chamber.

Previously I said that the main question that arises is the economics of such a project. I understand that the report prepared for the federal government, and to which I previously referred, has been released. However, it was quickly attacked by some commentators because that study, which was commissioned by the Australian Nuclear Science and Technology Organisation, did not adequately cost nuclear power. Clearly, there are cheaper alternatives with lower emissions, energy conservation and renewable energy sources. Countries around the world are proceeding down that path.

Paragraph (b) of the first part of my motion states that nuclear power does not address the problem of climate change quickly enough. Paragraph (e), which I will come to shortly, refers to the limited sources of high-grade resources. If we want to go down the nuclear energy path as a strategy to address climate change, we need to be able to rapidly increase the production of uranium and the number of nuclear power plants. The evidence suggests that nuclear power plants can take in the order of 10 to 12 years to build and commission. That is the estimated time frame to which people refer. We would need to bring uranium mining ventures on stream more quickly. The world's largest uranium mine, which is in Canada, has taken 10 to 12 years to develop. There is no quick resolution.

Nuclear power produces waste for which there is no viable means of storage. I intend to touch on these issues quickly, because I know that other members want to speak. I hope that other members in this chamber will be able to adequately speak on this motion and, I hope, make additional comments on the points I will raise. There is no doubt that in this world today we continue to search for a solution to get rid of the nuclear waste that has been generated over the past 30 years. People say a technological solution will be arrived at, but in 30 years of producing this waste no-one has found a technological solution. The solution is to try to find a place in which to bury the waste. Some people say that the right political and economic circumstances exist in Western Australia for it to be a nuclear waste repository. The United States examined whether the Yucca Mountains would be a good place in which to dump nuclear waste. After an extensive study, they said that would be okay. However, after further studies they realised that was not the appropriate geological area for a nuclear waste dump. The problem is the length of time for which we may need to store nuclear waste. No-one knows what the political

circumstances will be in 100 or 200 years, or even in 50 years. We need think only about how much the world has changed over the past 50 years to know that is the case. Therefore, the only solution at this time is to try to contain the waste. People say that nuclear waste is safe and we can contain it; we do not need to leave it in the middle of nowhere. However, if that is the case, why is everyone continuing to store it in the middle of nowhere?

Paragraph (d) of the motion states that nuclear power assists in the proliferation of nuclear weapons and increases the risk of terrorism. I understand the complexities of this issue. The percentage of uranium-235 atoms that is required for uranium to be used in a nuclear power plant is about four per cent, from memory, as opposed to the 98 per cent of uranium 235-atoms that is required for uranium to be used for the manufacture of nuclear weapons. However, there is no doubt that the technology and enrichment processes that are set up for the one can be used for the other. Therefore, there is also no doubt that if we allow a proliferation of nuclear power around the world, we will be setting up the mechanism for the production of nuclear weapons. Those nuclear weapons are problematic for our community. Also, even without enriching the uranium to the point at which it can be used for the manufacture of nuclear weapons, the waste material may be of great benefit to terrorists. I suspect that a person could grind the city of New York to a halt very quickly just by driving through the middle of it with waste from a nuclear power plant. People may mock at that suggestion. However, we need think only about the 39 states in the United States that are all trying to transport their nuclear waste to a central repository to appreciate the level of security that we would need to maintain around that waste to ensure that it was not used for improper purposes. The plants themselves may become terrorist targets. There are numerous areas of risk. There is no doubt that nuclear technology assists in the proliferation of nuclear weapons. However, there is an array of other ways in which it enhances the potential for terrorism.

Paragraph (e) of the motion states that only limited sources of high grade resources have been identified. There is a lot of uranium in the world. However, that uranium needs to be enriched if it is to be used in a nuclear power plant. There are two forms of uranium - uranium-235 and uranium-238. The uranium that is used to produce nuclear power must be enriched so that it has a concentration of about four per cent of uranium-235. The uranium enrichment process uses an enormous amount of energy. That is why only high-grade uranium is used as a starting point. I believe that in the United States two 1 000 Mw power plants are used just to generate the energy that is required for the uranium enrichment process. If lower-grade sources of uranium are used, an immense amount of energy is required to make that uranium suitable for power generation. It depends on which estimate we use, but even on the basis of the most optimistic estimate I was able to find, only 50 years' worth of high-grade resources, and some say as little as 30 years of high-grade resources, has been identified in the world as being suitable for enrichment. The problem is that many of those sources are in smaller deposits. That creates the further problem that a large amount of energy would be required to mine those smaller resources. As I have said, there is only 30 to 50 years' worth of resources. If we were to ramp up the use of nuclear power to the degree that it will make a difference to the problem of climate change, all of a sudden that 30 years' worth of high-grade uranium resources would shrink to three, four years or five years' worth of high-grade resources. At that point we would need to use a highly energy-intensive enrichment process. That raises the question of whether the total greenhouse gas emissions from the uranium mining and the enrichment process would be less than from some of the existing energy sources. If we are talking about renewable energies, it is absolutely not more efficient. However, it may be more efficient than some of the other alternative energy sources that emit carbon dioxide. The point is we cannot look just at uranium plants. We need to look at the whole process from mining through to the production of waste and greenhouse gas emissions. The problem with uranium is that we do not have the level of high-grade resources that we need for nuclear power generation.

Part (2) of the motion states -

Opposes a nuclear waste storage facility being developed in Western Australia due to there being numerous technical and social issues that have not been addressed and will transfer significant risks to future generations.

On this point, I am confident that no-one in this chamber is arguing that a nuclear waste storage facility should be situated in Western Australia. To the best of my knowledge, from the media reports I have seen, none of the major political parties in this state believes that should be the case. I hope I will not stand corrected on that, but that is my understanding. I am seeing, finally, some nods from members on the other side of the chamber. I think we are in agreement on the point that we do not want a nuclear waste storage facility to be situated in Western Australia. I think we all accept that will create a problem for Western Australia.

I was interested to read a few days ago a paper written by Advance Tourism titled "Hats off to Western Australia". The article compliments Western Australia on the "Real Thing" campaign. That campaign has resulted in a significant increase in the number of tourists to this state. The reason that campaign has been so successful is that it follows on from previous campaigns that promote Western Australia as a clean and green natural environment to which people from the world want to come. We do not want to juxtapose that against all

the technical, social and terrorism issues that would surround the establishment of a nuclear waste dump in Western Australia. Another associated problem is the risk that we will be transferring to future generations. Nuclear waste needs to be stored, protected and maintained. We cannot just dig a hole in the ground, bury it and leave it. We need to monitor it. A stockpile of nuclear waste material may create a problem for future generations who will need to manage that waste. Who will pick up the potential cost of managing the waste? People say that the producers of the nuclear waste will pick up the cost. However, how do we know that in 10, 15 or 20 years, the countries that gave us that waste will continue to pay us to manage that waste? If they turn around and say to the state that they are bankrupt, or they just do not want to keep paying for it, what will we do? What will happen if we ship it back to them but they say they will not take it back?

Hon Murray Criddle: What is the other side of your argument? What other power sources are you going to turn to?

Hon KEN TRAVERS: I went through some of those two weeks ago.

Hon Murray Criddle: What are you going to do about the problem with the ozone layer and all those sorts of things?

Hon KEN TRAVERS: Yes - global warming. In summary, the world can meet the greenhouse gas emission targets that it needs to meet just by moving to things like combined-cycle gas and renewables. That creates emissions; however, I have made the point that the emissions from that process may be lower than the total emissions from uranium mining. We could use some forms of energy conservation to reduce the need for the dirty and inefficient processes that use coal and other energy sources. Those forms of energy conservation would cost the same as the subsidies that are given to nuclear power plants. We could subsidise energy conservation -

Hon Murray Criddle: Have you done a business analysis on that?

Hon KEN TRAVERS: I want to give other members a chance to speak in this debate. I am sure that other members in this chamber will be able to deal with other elements of this. The difficulty with this is that people have not done that to a degree that they could. I have seen some analysis of what can be achieved with energy savings through the use of energy conservation mechanisms. In fact, there is a very interesting BBC web site that allows people to pretend that they are running the energy system in the United Kingdom for the next 30 years, and they can pick their mix of renewables. They use the estimate that up to 40 per cent of the UK's energy requirements over the next 30 years can be achieved by using energy conservation mechanisms. That is an example. There are bits and pieces that work. I find the member's comments fascinating in that the Prime Minister's comments show that the federal government is looking purely at nuclear power and is not considering the other issues. Therefore, I think it would be useful, to some degree, for us to have a more broad-ranging study of nuclear power. I do not oppose that. There are many bits of information to be considered and it would be fascinating for a committee of this Parliament to consider the costing issues, because a lot of work is being done on that in various places. However, I find it fascinating that the study called for by the federal government will consider purely the economics of nuclear energy and not look at the economics of all the alternatives.

A range of alternative strategies are available to us, and I have outlined some of those. The more one uses a technology, the cheaper it often becomes. Therefore, as we begin to say more often that we will use renewable energy, it will become cheaper. A nuclear study that was released by the Australian Nuclear Science and Technology Organisation revealed that the only way it could make its scenario economic - I think there is an argument still about whether it is truly economic - is by saying it has to be the nth nuclear power plant; that is, others have to be built before the one in Australia is built for it to be economical. The same can be said for renewable energy. The proof is in the pudding. In Germany, all the growth in energy is in renewables. I think the use of renewable energy has grown at the rate of - Hon Paul Llewellyn will probably know this better than I - 30 per cent or 40 per cent over a fairly short space of time. It is a quite significant issue in Germany. Germany has even bigger environmental issues than we do. Therefore, a number of alternatives can be used which are safe for the people of the world and which will help us reduce the level of emissions.

I have tried to talk about the transfer of the significant risks for future generations. If we have a nuclear waste dump in Western Australia, we will be leaving that waste for future generations to deal with, and there will be absolutely no guarantee, apart from the environmental impacts, of the cost, maintenance and security implications for future generations. The countries that send that waste to this state will be able to walk away at any time. It is the same for countries that export uranium. It can be exported under all the guidelines and controls relating to nuclear proliferation that one likes. However, when one considers all the countries that are going down the path of nuclear energy, one cannot be sure that they will not turn that energy into nuclear weapons; anybody who will guarantee that that will not happen is a braver man than I. One has only to look to the Middle East and the problems that exist there now. Many of the countries with which we are at war were

given the weapons that we are now complaining about by our allies. If we give these countries the uranium, it will come back to us in the form of a bomb. Today, the protections may be in place; how does one guarantee that those protections will remain in place for future generations?

We accept that we do not want nuclear waste storage facilities in Australia. I do not want them because nuclear power is not the answer. It has all the problems to which I have referred. It will not solve the greenhouse gas problems. If we go down the path of nuclear power generation, we will leave future generations with the problem of how to deal with nuclear waste. Nuclear power is not the solution. If we accept that, the next question is: do we still mine it? The two cannot be separated. Hon Ken Baston said some time ago in a media report that, if we mine uranium, we have to consider what will happen to the waste. That is absolutely right. If we want to be a part of the nuclear fuel cycle of the world and mine uranium, we have to accept some responsibility. If we do not, it will be like someone refusing to accept responsibility for his actions. We will be contributing to the problem and if we contribute to the problem, we will have to accept responsibility for solving the problem. If we want to be involved in the mining and enrichment process, we will have to admit that nuclear power is inevitable for the world. If we say that we support the nuclear industry, at that point we must be part of the solution to the nuclear waste problem.

My position is very simple. I do not think nuclear power is the solution to the world's greenhouse problems. A history of environmental problems has to be dealt with. However, we should not perpetuate the problems by creating other problems for the environment. I am very proud that Western Australia has not commercially mined uranium; in fact, this state government has banned the mining of uranium and it will continue to ban the mining of uranium. I am proud that I am a member of a political party that has continued to oppose the mining of uranium in Western Australia. In fact, that opposition predated my time in this place. It is completely irresponsible for people to say that they want to mine uranium, enrich it and get the profits from the mining, but that the waste is someone else's problem, even though we know about the problems that will be caused down the track. That is the ultimate hypocrisy and similar to a drug dealer who says that he does not have to worry about the drug addicts because they are not his problem - all he does is sell the drugs. I do not accept that and I certainly do not accept that sort of attitude to the mining of uranium. That is what people say when they say that they accept the mining of uranium.

Nuclear power is not a viable option and nuclear waste cannot be disposed of safely anywhere in the world. For those reasons, I oppose the use of nuclear power as a viable alternative for addressing climate change. Do we want, for pure profit reasons, to contribute to the nuclear power problems, but then say that we do not want to be part of the solution for waste disposal? My view and the view of the Australian Labor Party is that we do not, and we banned the mining of uranium.

One could go on with facts and figures on this issue. I am more than happy to engage in a continuing dialogue outside the chamber with people such as Hon Murray Criddle about the viable alternatives to nuclear power. I think it is a sign of what is happening at the national level that although the federal government is happy to have a study done of nuclear power, it is not happy to have the study broadened to consider the viable alternatives to nuclear power in Australia. That is the greatest disgrace about that federal program. Members in this chamber know probably as much or, in many cases, more about particular elements of it, so I will give them time to have a say in this debate. I urge members to support this motion.

HON NORMAN MOORE (Mining and Pastoral - Leader of the Opposition) [2.30 pm]: When I first heard Hon Ken Travers read out this motion in the house I could not help but wonder whether he was trying to out the Liberal Party or his colleagues. The Liberal Party has had some difficulty with this matter, but it has now been resolved, and I will explain the situation in a moment. I could not believe that Hon Ken Travers had moved this motion just after his colleagues Hon Vince Catania and Hon Shelley Archer had publicly voiced their support for uranium mining. I could not work out why Hon Ken Travers had moved a motion that would put his colleagues in a degree of difficulty when it came to show their support or otherwise of the motion. I guess we will know in due course who was the target of his motion. It might even be the federal Labor Party.

Hon Ken Travers interjected.

Hon NORMAN MOORE: I did not interrupt Hon Ken Travers. We have a short period for this debate, and I have a lot to say but I will keep it as short as possible so that others can speak. I thought Hon Ken Travers might also be having a go at his federal colleagues; namely, Martin Ferguson, the federal opposition spokesman on resources and a strong supporter of uranium mining and its export. To tell the truth, I was somewhat bemused about the reasons behind Hon Ken Travers' moving this motion. I guess we will find out his reasons in due course.

At the outset, I will outline clearly where the Western Australian Liberal Party stands on the issues of uranium mining, nuclear power and waste disposal. Its policy was a decision of the state conference of the Liberal Party, supported by the state Parliamentary Liberal Party. Some federal members have a slightly different point of

view from ours. I guess one of the joys of being in the Liberal Party is that people are entitled to have a different point of view from time to time without suffering the prospect of being expelled. I have already mentioned that the same problem exists within the Labor Party, whereby federal Labor members have a different view from that of Hon Ken Travers. The Liberal Party's position can be summed up very clearly. Firstly, we support the mining and export of uranium from Western Australia, subject, of course, to the proper environmental guidelines and commonwealth export approvals, which means meeting the international covenants for the export of uranium.

Secondly, we do not consider there is a need for a nuclear power station in Western Australia at present. There are abundant energy resources in this state. When we take that into account, given the relatively small demand in Western Australia compared to that in the rest of the world, we do not have an energy shortage problem that requires a nuclear power station at this time. That is for others to contemplate in the future. Thirdly, the Liberal Party is opposed to the storage of nuclear waste in Western Australia and we legislated for that under Richard Court's government. At the same time, however, I do not accept the notion that the export of uranium should in any way require the state to accept in return waste from potential users. That is absolute nonsense. The three mines policy in Australia was created by the Labor Party. No suggestion has been made by the federal Labor Party that, as a result of the three mines policy, which provides for the export of Australian uranium, it should in turn retrieve some of the waste.

Hon Peter Collier interjected.

Hon NORMAN MOORE: I think the Prime Minister of those days is now an advocate for the uranium industry, if my memory serves me right. That represents the hypocrisy of the Labor Party on this issue. Although nationally, the Labor Party supports mining in South Australia, it does not expect South Australia to take nuclear waste from the users of that uranium. However, it is now saying that if uranium is exported from Western Australia, we must accept its waste. It is a hypocritical point of view. We must not have any misunderstandings about this. The Liberal Party supports uranium mining under proper conditions; it does not see a need for a nuclear power station in Western Australia; and it does not support Western Australia being a nuclear waste dump, and it has legislated to prevent that. Having said that, I am interested in finding out whether all the Labor members will put up their hands in due course in support of the position espoused by Hon Ken Travers' motion. Some of them may not support it, and that will be interesting from our point of view. When we vote on this motion, I hope we can consider it in three parts. The opposition supports part (2) in part, and it opposes parts (1) and (3).

I refer first to nuclear power because the motion begins by requesting that the house reject nuclear power as a viable alternative for addressing climate change. The preamble in part (1) refers to climate change, but not one of the arguments in paragraphs (a) to (e) has anything to do with climate change. They argue that nuclear power is too expensive; will take too long to address the problem; produces waste, without making reference to its producing less greenhouse gas; assists in the proliferation of nuclear weapons and increases the risk of terrorism; and that only limited resources are identified. None of those assertions has anything to do with climate change. They relate to all sorts of extraneous issues that have nothing to do with climate change. Hon Ken Travers has a problem, as has the green movement. For a long time they have told us how greenhouse gases are causing climate change and that they will destroy us. Now someone has said that if we use nuclear power, we will reduce greenhouse gases dramatically. Having created the problem, the Greens have had to reject the solution because it does not meet their requirements; it is causing them a bit of trouble. Is climate change a problem?

Hon Louise Pratt: Yes.

Hon NORMAN MOORE: I do not know about that. This reflects the stupidity of people like Hon Louise Pratt. They accept the assertions trotted out by a countless number of people whose views they agree with, but they ignore the countless propositions by people they do not agree with. I do not know whether climate change is a problem. However, I will not stand in this place and claim that it is the sort of problem some people would have us believe.

Hon Paul Llewellyn: This is the very last place that people will argue about it.

The PRESIDENT: Order! Hon Norman Moore has indicated that although, as the Leader of the Opposition, he has unlimited time in which to speak on this motion, in the interests of allowing other members to speak in due course, he will not speak for too long. He has, therefore, suggested that he will not take too many interjections, so I ask members to please not interject.

Hon NORMAN MOORE: I am happy to respond to interjections any time anyone wants to throw one this way but, as I said earlier, we have limited time for this debate. If down the track someone wants to suspend sessional orders to continue this debate for the next month, I would be inclined to support that. I desperately want to hear in due course the views of all Labor members on this matter.

It is now the accepted view of the left and others that anyone who disagrees with the view that climate change and greenhouse gas emissions are a given, is a sceptic or has no credibility in this field. I do not know what is true and what is not, although I have read both sides of the argument. For the sake of the argument today I will accept that there is a problem with climate change and that greenhouse gases are part of the problem. Before I do that I will quote from Dr Patrick Moore, who will be denigrated very shortly by members opposite. Members may have heard of Dr Patrick Moore, co-founder of Greenpeace. He is now a convert to nuclear power. I accept that converts, be they religious or environmental, are sometimes more strident than others. However, this particular convert, Dr Patrick Moore, co-founder of Greenpeace, not a member of the Liberal Party or anything like that, was quoted in an article I found on the Wikipedia site on the Internet, which states -

Moore calls global warming “the most difficult issue facing the scientific community today in terms of being able to actually predict with any kind of accuracy what’s going to happen”. While acknowledging that the increase of Carbon Monoxide in the Earth’s atmosphere is caused by human consumption of fossil fuels, he claims that as of 2006 it cannot be fully proven that this is the reason the Earth has been warming since 1980. He stresses that is scientific evidence, not consensus opinion, that would prove or disprove this relation.

“It’s become so complicated, there’s so much snake oil around the whole subject... the best comment that was ever made by Michael Crichton in his book State of Fear: ‘I am certain there is too much certainty in the world’. And I am certain that he is right.”

Dr Patrick Moore has a lot of different views about things. He also said that global warming is a good thing because it would melt the glaciers and create more arable land. That is an interesting scenario and one that I will not go into at the moment. But that is the thinking of a person who was -

Hon Ljiljana Ravlich: It’s almost as bad as a canal.

Hon NORMAN MOORE: I am talking about the co-founder of Greenpeace. These are not my views. I will not waste the time of the house now but I found an interesting article in *The Australian’s* higher education supplement of 17 May 2006. It was headed “Whatever happens, we’ll manage”. It is written by Ian Lilley, an archaeologist. He has some very interesting views on this. He says that climate change has been going on naturally for the history of the earth and human beings adjust to their circumstances and have done over countless generations. He talks about times in our recent history when the Thames River used to freeze over, not many hundreds of years ago, and when Greenland was green and had trees. Those sorts of things have happened in the past few hundred years.

Then there is the Leipzig Declaration on Global Climate Change, albeit a 1997 declaration. It was made by a number of eminent scientists. The conclusion of the scientists’ statement is -

However, based on all the evidence available to us, we cannot subscribe to the politically inspired world view that envisages climate catastrophes and calls for hasty actions. For this reason, we consider the drastic emission control policies deriving from the Kyoto conference -- lacking credible support from the underlying science -- to be ill-advised and premature.

That is a statement by eminent scientists on the issue of climate change. As I said, it is a 1997 document and they may well have a different opinion now. One needs to at least consider both sides of the argument.

When I say that I do not know whether climate change is a problem, it is because there is no absolute total agreement by scientists around the world that it is a problem. The way in which human beings operate and produce energy is contributing to it. For the sake of today’s debate, I will accept that it is a problem. What are we going to do about it if it is a problem? Obviously, we should do something about greenhouse gas emissions. One way of getting rid of greenhouse gas emissions is to stop burning the fossil fuels that create them. If we do that, we will need to find an alternative energy source. One of the things that really bugs me about this debate about energy is that countries such as Australia have abundant energy - we have energy coming out of our ears - and the world’s best standard of living, yet we are prepared to say to the world that it has to start reducing its energy consumption. The people who will be most disadvantaged by that are not us but people living in the developing world who desperately need vastly more quantities of energy than they have now. Every morning millions of human beings around the world wake up to the thought of having no food, water or power that day. The notion of less energy consumption around the world into the future absolutely ignores the reality of the circumstances of the developing world. We have to find an alternative. Hon Ken Travers has listed some and I will go through those in a moment.

Scientists, including Dr Patrick Moore, are saying that nuclear energy is part of the solution. They do not say that it is the solution, but it is part of the solution. One reason is that it does not create greenhouse gases of the quantity that are created with the burning of fossil fuel. I will quote what Patrick Moore said about that on 720

ABC Radio on Thursday, 8 June 2006 before addressing an Australian mining and exploration conference in Western Australia. Speaking about nuclear power, he said -

It does not produce air pollution, it does not produce greenhouse gases like the fossil fuels coal and natural gas do, and it's a no-brainer, in a sense, in terms of addressing climate change, air pollution and energy requirements for the future.

So it certainly is about time that we had an intelligent conversation about this subject, and got away from the scare tactics, and talked science, and economics and environment.

He could have been talking to Hon Ken Travers. He relies very heavily, as do lots of people on that side of the argument, on this notion of scare tactics. They want to frighten everybody to death by saying that if we even talk about nuclear power, we will all glow in the night for the rest of our lives!

Hon Ken Travers: You don't accept that it's dangerous?

Hon NORMAN MOORE: Of course I accept that it is dangerous but I also accept that walking on the road is dangerous. We could get run over by a bus. I cannot guarantee that Hon Ken Travers will not get run over by a bus tonight any more than I can guarantee that somebody will not steal a nuclear weapon from somewhere. We cannot give guarantees and the member knows it. Life is dangerous.

Hon Ljiljanna Ravlich: You're telling me!

Hon NORMAN MOORE: Especially if one is the Minister for Education and Training when she keeps changing her mind and the Premier comes and takes over her job. That is dangerous.

Hon Ljiljanna Ravlich: At least I kept it.

The PRESIDENT: Order, members! We are venturing into a dangerous area of debate.

Hon NORMAN MOORE: I am pleased the minister kept her job because that means that we will have many more opportunities in the future to do something about causing her difficulties.

There was some talk, even amongst the environmental groups, in May this year about whether nuclear power should be supported in the context of the climate change issue. The Wilderness Society put out a press release on 4 May that stated -

Uranium mining causes widespread environmental damage, particularly through its use in generating nuclear power, and members of the Australian environment movement remain totally opposed to it, The Wilderness Society said today following reports WWF Australia supported further mining and exports.

That is the Wilderness Society getting stuck into the World Wildlife Fund because it reckons the fund has changed its mind on the mining and export of uranium. On the same day - I do not know which one came out first - the WWF put out a press release entitled "WWF says nuclear no answer to climate change" but then says that we must have absolute safeguards for uranium mining, which has been undertaken in Australia for decades. The WWF press release does not say that it is totally opposed to uranium mining but says that there have to be proper safeguards. Even within the environment movement there is doubt about whether nuclear power is good or bad from the point of view of climate change.

Let us now look in detail at points (1)(a) to (e) of the motion moved by Hon Ken Travers about nuclear power. First, he says that it is too expensive. Without going into a lot of detail, he might be right or he might be wrong. However, Professor John H. Gittus, a consultant, produced a paper titled "Introducing Nuclear Power to Australia: An Economic Comparison". The paper was produced in March 2006, so it is contemporary. I will quote from part of the report -

Our Model forecasts that nuclear power would be competitive with the actual costs of generation.

...

Model forecasts based on ABARE projections of gas and coal prices show that nuclear will be continuously competitive with gas and coal in Australia through 2011 . . .

That is based on the limit of information on coal prices. The report goes on -

Either of these plans is then shown to be capable of funding the construction of a profitable nuclear power station in Australia.

...

The five measures that Australia currently plans to mitigate global warming will, taken together, reduce Australia's Greenhouse gas emissions by 38 million tonnes per year. An equal reduction would be

provided by substituting 4 to 5 GWe of nuclear generation for present and planned coal-fired power stations. This would comprise, for example, three AP1000's.

Fundamentally, that report is saying that we can operate nuclear power in Australia competitively. That is the view of somebody other than me because I do not know whether it is expensive or not. The bottom line is that nobody will generate it if it cannot be sold competitively.

Hon Ken Travers talked about alternatives. Let us look at what some of them are. One is wind power. Some people think that there is an environmental problem with coal-fired power stations, but a lot of people do not like having wind turbines in their backyard. It is causing a serious problem in some areas. It produces such a small amount of power that it cannot be used as a base power load anywhere. I hope people will continue to work on solar power. The only problem with solar power is that it works only when the sun is shining. Hydroelectricity is another option but it is environmentally unacceptable these days. Tidal power is another option. I hope that somebody will find a solution to it. Wilson Tuckey is working his butt off to do something about it. Maybe there is some hope in respect of that. Similarly, with wave power. Geothermal power is something that needs to be considered very seriously. My view about alternative energy sources is very simple: we should be spending lots of money on investigating them all. We should use all the power sources that are available to us, provided they are competitive economically. That is one of the problems we have in determining the energy mix down the track.

The motion also states that nuclear power does not address the problem quickly enough. What a stupid thing to state. If it is going to address the problem, let us get on with addressing the problem and do it as quickly as we can. It does not make any sense to say that it does not do it quickly enough and, therefore, we should not do it. If we are not going to use nuclear power because it takes too long, what is the alternative? Hon Ken Travers did not have one except all the ones I just listed, which will take a long time to bring on stream and which will not provide the quantity of energy that the world needs.

The motion also states that nuclear power produces waste for which there is no viable means of storage. That is a concern for everybody; it is a concern for those who support nuclear power. However, a significant amount of work is being done around the world to deal with the storage of nuclear waste. Wikipedia on the Internet lists a number of different methods used around the world to store high-level waste. Low-level waste is not quite as significant a problem. Some storage is not a long-term solution but it is a short-term solution. One example is vitrification, which is a strategy being used in Europe in particular. Another is synroc, which is an Australian invention. The nuclear waste is mixed with a form of glass and then buried. Geological disposal is another example. Quite a number of countries are looking at sites for the geological disposal of high-level radioactive waste. Various ideas have been presented. Transmutation is an area that is being looked at. Reusing the waste is a very sensible way to go about doing things. The bottom line is simply this: we have a problem with nuclear waste already. The continuation of the mining of uranium and the production of waste from nuclear power stations and other uses of radioactive material will not go away. It needs to be sorted out anyway. It is a problem that is being sorted out. I might add that the United States has produced 40 000 tonnes of waste in the past 40 years from operating nuclear power stations. That is not a lot of material in the overall scheme of things. The Americans are looking at a number of options. Hon Ken Travers mentioned Yucca Mountains. I do not know what the latest on that is. I have read the letter sent from the President of the United States to Congress that stated that the government supported that particular proposition.

Hon Ken Travers: They have moved on from that as they have identified some problems.

Hon NORMAN MOORE: I am sure they will look for another alternative. Everybody wants to find a solution to this problem. The use of nuclear power may, in fact, solve other problems, such as global warming, which the member tells us is a very serious issue. The motion also states that nuclear power assists in the proliferation of nuclear weapons and increases the risk of terrorism. There are all sorts of weapons available to people that cause all sorts of problems. I was reading today about germ warfare and those sorts of weapons of mass destruction that are not confined to nuclear weapons. Interestingly, it has been 60 years since the last world war. One of the reasons is perhaps the deterrent effect of nations having the capacity to obliterate the world using nuclear weapons. However, one would be crazy to not acknowledge that this is a problem. The problem is here and now. Having nuclear power and uranium mining in the future will not add to the problem. That is another problem that has to be sorted out. We acknowledge how difficult that is. Hon Ken Travers then stated that there is not much uranium around anyway. If so, that should solve the problem. If there is none around, it will not last for long. There will not be nuclear power for long, so he will not have to worry about it. The bottom line is that that is not correct. The member stated that an optimistic assessment is 50 years. I read today that an optimistic assessment is that there is 200 years of supply. Of known reserves at the present time, the length of supply is 50 years at a cost of \$80 a kilogram as a base price. The estimated reserves in the world are about 3.5 million tonnes. I might add that Australia has a significant amount of the world's supply.

Hon Ken Travers: Did the member say that the optimistic assessment was 50 years of supply based on current known resources? That is what I was saying.

Hon NORMAN MOORE: No. Industry believes that there is 50 years of proven supply, and that the optimistic assessment is four times that - 200 years.

Hon Ken Travers: Of known reserves, the optimistic time frame is that it will last 50 years. As such, we agree.

Hon NORMAN MOORE: They also say that potential further reserves will be discovered. We have not even started in Western Australia. Industry anticipates that there could be four times the 50 years' supply of uranium around the world. Again, I do not know. The fact that the supply might not last for more than 50 years is not a reason for not doing it if it will save us 50 years of greenhouse gas emissions.

Hon Ken Travers: That is on current usage. If more of it is used, that 50-year period will shorten dramatically. Alternatively, it has to be enriched.

Hon NORMAN MOORE: Does the member remember 1973 and the world oil crisis, when we were told that we would run out of oil in five minutes? He does not remember that? Whenever these things happen, people start to find more and more. There has been no exploration for uranium in Western Australia of any consequence since about 1980. Kintyre was the last major resource find. Indeed, in 1977 in my maiden speech I argued for the development of Yeelirrie. That is how long ago that deposit was found. I suggest that there are vastly greater quantities of uranium around than have been discovered so far. That seems to apply to most minerals and petroleum resources around the world. Part (2) of the motion deals with nuclear waste storage. The opposition supports this part of the motion; however, it does not support the second half of it. We support the first part, which reads -

Opposes a nuclear waste storage facility being developed in Western Australia . . .

The words that follow are subject to dispute. We would like to leave out the words that follow and simply express our opposition to a nuclear waste storage facility in Western Australia. When we were in government, I accompanied Richard Court to the United Kingdom to meet with Pangea Resources Australia. We explained to it very clearly that Western Australia was not an option for a nuclear waste dump. I share Hon Ken Travers' views about other industries. At the time of that visit I was Minister for Tourism, and I was told by the tourism industry in no uncertain terms that if we wanted to give Western Australia a bad name in tourism circles, we had only to give it the title of the world's nuclear waste dump. A waste dump on the other side of Warburton might not have any effect on Perth or on the south west and north west of the state; however, our tourism competitors around the world would say that it does not matter how far away it is, a nuclear waste dump in Warburton is a nuclear waste dump and people should not visit Western Australia. Similarly, the food and wine products that we sell on the world market from a clean, green environment would be seriously affected if Western Australia had a nuclear waste dump, albeit I believe that we could have a waste dump in Western Australia without it causing any problems. That is my view. However, I do not support having a nuclear waste dump in Western Australia, because I think it would be used by our competitors in the agricultural and tourism industries to our grave detriment.

Hon Kim Chance: Perhaps we should create a new sovereign state.

Hon NORMAN MOORE: We could do that.

Hon Kim Chance: It would not be in Australia then.

Hon NORMAN MOORE: We could excise a bit of the middle of Australia and call it something else. Perhaps we could call it Chanceland!

Hon Kim Chance: What about Mooreland?

Hon NORMAN MOORE: I will go halves with the Leader of the House!

That is the opposition's view. We do not want a nuclear storage dump in Western Australia - it is as simple as that.

The third part of the motion refers to the mining of uranium. I have already said that the fact that the Labor Party supports the three mines policy at the national level demonstrates the serious hypocrisy within the Labor Party. The state Labor Party says that it does not want uranium mines in Western Australia. I have not seen Labor members marching on the steps of Parliament House in Adelaide in an attempt to stop the Labor Party in South Australia allowing the growth of Roxby Downs, which will become the biggest uranium mine in the world by a long shot. I have not noticed Labor members marching down North Terrace in Adelaide complaining about the South Australian Labor government. The three mines policy was introduced by a federal Labor government. It was a pragmatic decision by the Hawke government because we already had three mines. If we export from three mines, what is the difference in exporting from one, six or 10 mines? It does not make any difference. The

end result is the same - we are exporting uranium overseas. The bottom line is that those exports are being carried out under stringent international guidelines. In his comments, Hon Ken Travers said that that is not good enough because we never know where the uranium will go. Perhaps he is right. However, the world does its best to make sure that we do know where the uranium goes. If Hon Ken Travers followed his own argument, he would be marching on the steps of Parliament House in South Australia. What is the difference between Western Australian uranium being used for international terrorists' weapons and South Australian uranium being used for the same purpose? I am still struggling with the Labor Party's view of this. I often listen to Martin Ferguson. He is affectionately known as "Marn" by his former leader. Martin Ferguson is a pro-uranium mining advocate. On the other hand, Anthony Albanese, whom we see frequently on our television screens, is vigorously opposed to it. The best way to sort this out is to see what the leader of the federal Labor Party has to say about this issue. Kim Beazley was interviewed about uranium mining on SKY News. The interview took place on 17 October 2005. I can only assume that the views he expressed are current. Mr Beazley tends to change his mind on the odd occasion. When asked questions about uranium mining and nuclear power in Australia, Mr Beazley said -

So, we would be cautious, cautious to the point of opposition obviously, of the question of a nuclear power industry here but that's a different thing to the question of uranium exports.

. . .

Now, it's a good thing that Australia is exporting uranium because we are tough-minded, careful salesmen on this subject. What I wouldn't want to see is our reputation and our practice in that area anyway diminished by excess enthusiasm.

Whatever that means. He continues -

It doesn't have to be, I don't believe it will be.

Those are the comments of Kim Beazley, a person on whom we can always rely to give a straight answer to a simple question. He said that the Labor Party would be cautious to the point of opposition. Why can he not say that he is opposed to it? He said that the Labor Party would be cautious to the point of opposition on the question of nuclear power in Australia. Let us accept that the Labor Party is opposed to nuclear power in Australia. That is fine. However, Mr Beazley then states that the Labor Party supports the export of uranium. The reason that he supports the export of uranium - Hon Ken Travers should take note of this - is -

. . . because we are tough-minded, careful salesmen on this subject.

Is Hon Ken Travers telling me that Kim Beazley is wrong? Is Kim Beazley saying that he believes, as I do, that uranium can be exported safely, or does he have a different view?

Hon Ken Travers: It is clear that the Western Australian Labor Party does not support the mining and exporting of uranium.

Hon NORMAN MOORE: That is fine. I want it to be known clearly that Hon Ken Travers has a different view from that of his federal leader and colleagues.

Let us consider uranium mining in the context of Australia at the present time. Canada and Australia are the two biggest uranium mining nations. Indeed, they account for just over half the world's production. Australia has only three mines. In 2004 Canada produced 11 000 tonnes while Australia produced 8 900 tonnes. Our biggest mines are Ranger, Olympic Dam and Beverley, which produces about 1 000 tonnes a year. The new owners of Olympic Dam - Roxby Downs - plan to increase that mine's output from 3 700 tonnes to more than 12 700 tonnes, which would make it the biggest uranium mine in the world. If we look at the figures that are available - I will not go through them now - we see that Australia's uranium resources for future mining are enormous. I think they account for about one-third of the world's known reserves. That is more than several million tonnes of uranium. It is a significant resource for Australia. It has become an attractive resource in recent times because countries are making decisions about nuclear power generation and that has seen the demand for uranium dramatically increase. In addition, the nuclear fuel that was created in Russia during the Cold War has been sold off and used for nuclear power generation. I am told that that particular resource is being depleted rapidly, so that there is an even greater demand for uranium, which is then enriched for nuclear power. The price of uranium is increasing, as are the shares of uranium companies. The opportunity for Australian companies to enter the world market is drawing closer. I do not believe that anybody particularly wants to start a uranium mine in Western Australia at the moment. One of the reasons that the government has not had to make a decision about this matter is that nobody has sought to start a uranium mine. The government position's is that no-one can apply for an exploration or prospecting licence for uranium. Nobody has applied for either a mining lease or title for uranium. The day that happens is the day that the Carpenter government will be confronted with a problem. At the last election the Labor Party tried to make this into an issue and it did not, because I clearly

outlined our position. I said to the journalist who asked me the question that the Labor Party has a policy, but it has never been tested. It will be tested only when a company like Western Mining Corporation Ltd, as it was then and now BHP Billiton, at Yeelirrie, or Rio Tinto at Kintyre makes an application to the government for a mining lease. It is only then that the government will have to make a decision. The decision will not be whether it has a philosophical view about uranium mining, but whether it will forgo millions of dollars in royalties and the jobs that are created by that development. The day will come, I suspect sooner rather than later, when the Carpenter government will have to make a decision on whether to allow the mining of uranium in Western Australia. I look forward to the government having to deal with that, because it will not be easy. Until now it has been easy for the government, because it has not been required to make a decision.

We do not accept the argument that if the mining of uranium is allowed, we are obligated or under any compulsion to take back the waste; we do not do that under the existing three mines policy. Australia does not require any exporter to take back the by-products of that export. For example, when we sell wool overseas, we do not expect the nasties that come out of the manufacture of that wool to come back to Australia. We do not require the iron ore dust from the iron ore that is exported to China to come back to Western Australia. It is a nonsense to say that that is an obligation. The notion that if a country is in the nuclear cycle it must be in it entirely is a nonsense. The fact that we have been exporting uranium for years and not taking back the waste demonstrates that we do not have to do that. It is a decision for Australia; not any other country. To keep using that argument is fallacious. The statement that if a country mines uranium it must take back the waste is designed to frighten people. It does not.

The opposition will support part of this motion. It will oppose part (1), because nuclear energy may be part of the solution to climate change, although it does not believe Western Australia requires a nuclear power station in the foreseeable future. We have plenty of gas and coal; therefore, there is no need for such a plant. The opposition supports part (2) of the motion on the basis that it opposes a nuclear waste storage facility being developed in Western Australia for the reasons that I outlined. The opposition opposes part (3) of the motion because of the reasons I outlined; that is, uranium mining will significantly benefit Western Australia through royalties. Western Australia already exports uranium; therefore, it makes no difference. It is under no obligation whatsoever to accept waste in return.

HON PAUL LLEWELLYN (South West) [3.13 pm]: I thank Hon Ken Travers for putting up a motion like this and Hon Norman Moore for his contribution to this debate. The Greens (WA) have had a longstanding commitment to finding solutions. In fact, it has a well-known opposition to nuclear energy as a power source. Let us get behind the reason for this debate. It is not about climate change or fuel security. We are having this debate because, as a society, we have reached crunch time. As a society we are at the point at which our population has increased to such an extent that we are producing pollutants and greenhouse gas emissions that are causing climate change. We have become highly dependent upon energy. The lifestyle of western societies depends upon it. This cocktail of issues brings us to the point at which we have to start solving problems simultaneously. We have to look for solutions where the pathways are obvious and clear.

The Liberal Party says that climate change does not exist and we do not have to do anything about it. However, all of a sudden, now we have a reason to argue that climate change does exist and it will facilitate the development of an industry that will be a panacea for that problem. That is not the case. This issue is really about fuel security, climate security and the long-term management of the way in which we, as a society, organise things. It is best that we adopt a no-regret scenario; one that leaves us with opportunities for the future rather than more problems to resolve. Nuclear power is not a solution. The nuclear industry and nuclear power are neither a solution to climate change nor a practical solution to electrical generation. Instead of that industry expanding, it is now in decline. If we could clearly think through the issue of climate change, where would we turn to for a solution? I am glad that we are having this debate because after years of talking about climate change, it has been finally acknowledged that it needs to be addressed, even if some people do not believe in the scenarios.

I will deal with nuclear energy versus uranium mining and fuel security and the safety of those issues. Hon Giz Watson will deal with the uranium mining and fuel security issues throughout the nuclear fuel cycle. I will also deal with the energy issues. Let us look at the actual problem behind the uranium debate. We have grown increasingly dependent upon cheap energy. As a society, every aspect of our lives is underpinned by an energy currency. It is no different from money - the economy drives our whole lifestyle and concept of what it means to live in a modern society. Energy is an alternative currency and we need to deal with that. Australia, and Western Australia in particular, lacks any coherent energy strategy and policy.

Hon Murray Criddle: What is your coherent energy policy?

Hon PAUL LLEWELLYN: I will bring it on very soon. It is interesting that Julian Cribb, a journalist from *The Australian*, provided the best commentary on where Australia is at with its energy policy. The article reads -

John Howard may have done Australian science an inadvertent favour when he called on the nuclear debate, apparently egged on by chief scientist . . .

Given that almost nothing in our society would work without energy and that our use of it will double by the 2020s, it is high time Australia had sensible discussion about where it is coming from in future, and in what forms, to replace the squalid babble of self-interest and ideological prejudice that has passed for energy debate in the past quarter of a century.

Let us take note of that. We have had a fragmented debate with some individuals saying that nuclear power is the solution and others saying that either coal power or renewable energy is the solution. We need to look at Australia's entire energy budget to work out how we will move forward. Julian Cribb goes on to say -

Plainly it hasn't. Today Australia's long-range energy policy consists of little more than a squabble of competing interests: coal, oil, gas, nuclear, wind, solar, hot rock, biofuels, hydro and so on, each pushing their own barrow and bagging the alternatives.

Australian energy is a \$50 billion business, and will be \$100 billion business by the 2020s. It is hard to imagine a \$5 million business, let alone a \$50 billion business so unplanned and with so little idea of where it is heading. We have better plans for managing salinity.

Sadly, neither Australia nor Western Australia has an energy strategy. Therefore, we have a fragmented debate about nuclear power, we have a fragmented debate about climate change and we have a fragmented debate about the coal industry. We should be having a debate about what we need to put in place to meet our energy demands in the future. We should also be having a debate about what we need to put in place to address climate change and create a clean environment.

To give some sense of the dire straits in which Australia finds itself because it is investing so little in renewable energy, I quote again from Julian Cribb -

Australia does a certain amount of energy supply research: about \$300m a year, according to the Australian Bureau of Statistics. Industry, universities, several co-operative research centres and CSIRO are all involved. Some of this work is excellent, but it is also fragmented, unco-ordinated, riven with self-interest, ad hoc and devoid of national vision.

It may also be underfunded: is \$300 million a suitable level of investment for a fast-growing \$50 billion industry, when agriculture invests three times that in an industry worth half as much?

The problem for Australia is not that we need to have a nuclear debate, but that we need to have a responsible debate about where we are going in addressing our future energy needs and climate change. The added problem is that nuclear energy does not fit very well into the debate about our future energy needs. I tend to agree with the words in the motion. Nuclear power does not have a clear place and a clear future. I would call nuclear power the "no clear future" plan.

Nuclear power is regarded unfavourably by electricity suppliers around the world. In fact, nuclear power is basically disappearing as a favoured source of energy around the world. That is not just because it is lower scale. Nuclear reactors are generally in the order of 1 000 megawatts in size. That means they do not fit into the electricity grid even in a country the size of Australia. Therefore, nuclear power does not represent a technical solution to Australia's electricity supply problems, as much as we would like to believe it does. The south west interconnected system provides the Western Australian electricity grid with approximately 3 500 megawatts of installed capacity. A nuclear power station would require about a 1 000-megawatt unit. If that unit went out, as it will when it has to be shut down because of an accident or for some management reason, the entire grid would become unstable. Nuclear power does not have a role in producing a stable, long-term and technically sound electricity supply in Western Australia. It barely has a role even in the national electricity grid on the east coast, which is much larger.

It is worth noting that across the globe there has been an exodus from the nuclear industry. Only a small number of orders for nuclear power stations have been placed in the past 10 to 15 years. That is due primarily to the fact that smaller-scale power generation units are proving to be more practical than large-scale units. The global statistics are very sobering. I refer to an article by Amory Lovins, chief executive officer of the Rocky Mountain Institute, dated 11 September 2005. The article is titled "Nuclear power: economics and climate-protection potential". The abstract of the article states -

Nuclear power worldwide has less installed capacity and generates less electricity than its decentralized no and low-carbon competitors - one-third renewables (excluding big hydroelectric dams), two-thirds fossil-fueled combined-heat-and power. In 2004, these rivals added nearly three times as much output and six times as much capacity as nuclear power added; by 2010, industry forecasts this sixfold ratio to widen to 177 as nuclear orders fade, then installed capacity to disappear gradually as aging reactors retire.

The number of orders for nuclear power stations has decreased so dramatically over the past few years that the pensioning off of the current stock of nuclear power plants alone will result in a collapse in that sector across the world. A later version of the same article states -

In 2004 alone, Spain and Germany each added as much wind capacity - two billion watts (GW) - as nuclear power is adding worldwide in each year of this decade. Around 2005, nuclear construction starts may add less capacity than solar cells. And in the year 2010, nuclear power is projected by the International Atomic Energy Association to add only one 1/177th as much net capacity as the decentralized electricity industries project their technologies will add.

In other words, the growth of the nuclear industry internationally is going down, not up. That is not just because nuclear power is expensive, but because the alternatives are now much cheaper.

Amory Lovins continues -

That astonishing ratio will increase further, not only because micropower is growing so fast from a base that's already bigger than nuclear power, but also because the aging of nuclear plants is about to send global installed nuclear capacity into a long decline. Mycle Schneider and Antony Froggatt have shown that the world's average reactor is 21 years old, as is the average of the 107 units already permanently retired. Their analysis of reactor demographics found that if the reactors now operating run for 40 years (32 years under German law), then during the next decade, 80 more will retire than are planned to start up; in the following decade, 197; in the following, 106; and so on until they're all gone around 2050. Even if China built 30 GW of nuclear plants by 2020, it'd replace only a tenth of the overall worldwide retirements.

In the near future, nuclear power will be going, going, gone. The reason it will be going, going, gone is that energy efficiency is a far cheaper resource than building new capacity. It is likely that the only nuclear reactors that we will see ordered in the next few years will be from failed states that we can hardly rely on to take full responsibility for the full nuclear cycle. No private company will invest in nuclear power in the current economic environment. The fact is that people are retiring nuclear power as fast as they can. Spain is an example. I have an article which states -

Spain says "Adios" to nuclear power.

The multimillion-dollar nuclear industry is being shut down and is unlikely to revive itself. It continues -

... President José Rodríguez Zapatero has confirmed the government's commitment to the phase-out in his State of the National address.

Zapatero has shown true leadership in preparing the phase out of this dangerous and polluting problem and phasing in safe renewable energy sources ...

In a bid to resurrect a failing nuclear industry, regular claims of a nuclear power revival have been made - the most recent using climate changes as an excuse to spend further billions to build more reactors.

But renewable energy is now taking the lead, with a single source such as wind energy adding more than 6,000 megawatts to the European grid every year, the equivalent to two large nuclear reactors. In only a few years, wind power in Spain has grown to 8 percent of the national electricity production. In 2005 alone, some 1680 megawatts of new wind power were installed, generating four times as much electricity as the Zorita nuclear power plant which Spain closed last month.

The facts are that, globally, even though we would like to have it another way, nuclear power is clearly on its way out, and it is on its way out because it is uncompetitive with alternatives. The alternatives in this case are not only renewable energy generation, but also investing in low-carbon alternatives such as co-generation gas and investing in energy efficiency. That is not to say that we should ignore the role that nuclear power has played in our mix of power until today. It was an experiment that the world had to have and it was an experiment that we got ourselves involved in because the nuclear power industry said that it would make power that was too cheap to meter. Nothing is further from the truth. Nuclear power has proved itself to be so expensive that no private enterprise will go near it.

I will give the house a calculated example of my comments. People have been speaking in this place about cleaning up the United Kingdom's ageing reactors and the nuclear legacy that has been left. Hon Ken Travers said that the cost of doing that would total £70 billion. In fact, that bill has increased and the cost of cleaning up the UK's ageing reactors will now be £20 billion more than forecast only two weeks ago. What does £70 billion actually look like in terms of alternative energy. I have done some calculations. The £90 billion cost does not even include the £15 billion to £20 billion it cost to build the holes in the ground to store the waste underground. That stuff is extremely expensive. The amount of £70 billion is equivalent to approximately 50 000 megawatts

of installed capacity of wind. An amount of £90 billion is equivalent to approximately 65 000 megawatts of installed capacity of wind at approximately £1.40 per watt. To give members some sense of that, that is equivalent to 2 500 Albany wind farms, for those people who know it, which is about 20 megawatts. Fifty thousand megawatts of wind power will produce enough power to supply energy for 65 million people every year. An amount of £90 billion worth of remediation is enough wind power to supply energy for 84 million people every year. That gives members some examples of how expensive nuclear power is when compared with the alternatives, and that does not even take into account the capital costs of purchasing the nuclear material, building the power stations, and running them for 40 years. That is the cost only of cleaning up the mess at the end of the 30 to 40-year life cycle. To give members a sense of the importance of these comparisons, the south west interconnected grid is 3 500 megawatts, and the £90 billion proposal would produce 65 000 megawatts of wind power.

It is often argued that nuclear power is carbon free. I witnessed an extraordinary SBS news bulletin which showed a young journalist standing next to a massive hole in the ground in which a nuclear power plant was to be built. She said that she could not see any greenhouse gas emissions there. She said that, with fantastic technology, the nuclear power station would be built there! Thousands and thousands of trucks were driving into this shaft and taking out millions of cubic metres of rubble and she could not see any greenhouse gas emissions. The problem with nuclear power is that it produces approximately the same amount of greenhouse gas emissions as it would take to run a gas-fired power station. Where do the emissions come from? They come from the nuclear fuel cycle right from the beginning when trucks, scrapers and processing facilities are mining and crushing the uranium, processing the yellowcake and roasting it at 800 degrees in a calcine furnace, with drums of uranium being stacked and moved around with forklifts and uranium being moved around the world in tankers. That all takes a phenomenal amount of energy. Every tonne of uranium processed requires two tonnes of zircon; therefore, zircon must be mined and included in the greenhouse costs before being used in a nuclear power station. At that stage alone significant greenhouse gases have already been produced. Millions of tonnes of concrete are required to create the power station's foundations and to cover the very large establishment at the end of its life cycle. That requires enormous amounts of energy, which produces enormous amounts of greenhouse emissions. Ultimately, nuclear waste must be deposited in a very large hole and protected for decades, if not centuries, and that takes an enormous amount of energy and social organisation, all of which require a massive amount of carbon commitment. The nuclear industry does not supply a carbon-neutral solution to our energy problems. The nuclear industry is in decline because it has lost any potential competitive edge; it certainly does not have a competitive edge. People are now finding out that investing in efficiency to produce clean, safe energy is far more cost competitive.

Perhaps our greatest energy source is the amount of energy we can save through increased efficiency. I do not mean the increased efficiency that is achieved by only end users. The efficiency of our power generation facilities - our coal-fired and gas-fired facilities - can be increased by co-generation. That is precisely where the international market is taking us. The more efficient producers become in producing and consuming energy, the more profitable their businesses become, so much so that the biggest companies in the world are now investing massively in energy efficiency. Approximately \$15 billion of increased profits have been made by companies that have chosen a low carbon future. Members can read more on the Internet if they key in the heading "Carbon down, profits up". It is in the second edition of a bulletin that tracks the commitments of very large companies to reduce their energy consumption. It refers to the increases in profits that have followed as a result of those companies pursuing energy efficiency rather than investing in increased generation and energy consumption.

The Greens accept that nuclear power has become part of the energy mix and the energy economy of the world. We also accept that, as a society, we have become highly dependent on secure, safe energy for the future. We also accept that climate change has become one of the most important and vexed issues for not just this generation, but also the next generation. Therefore, members must consider any solution to the problems surrounding our energy future to achieve a no-regret scenario. If we invest in coal-fired power stations, we will sentence the next generation to increased greenhouse gas pollution, emissions and problems. The only real solution to greenhouse climate change and greenhouse gas emissions is a low carbon future achieved through investing in technologies that will reduce the amount of carbon that is released into the atmosphere; namely, in renewable energies, efficiency technologies and cleaner existing technologies. I envisage the use of coal-fired power stations in the future and that their efficiency will increase and their emissions will be reduced. If it is technically possible, carbon emissions will be buried in geological structures through geosequestration. However, it does not make sense to pursue a technology that produces not only considerable amounts of carbon, but also long-term intractable waste problems without any final solution. That scenario - proposed so that we can meet our energy needs now - would result in the imposition of costs on the next generation, and that is unacceptable.

The Greens believe the state should have a no-regret scenario by investing in clean, safe technologies to achieve energy efficiency. The government should reject uranium mining in Australia and nuclear power as an

alternative source of energy because, as a society, we have a responsibility to leave our children a clean, safe future with clean, safe energy sources.

HON LOUISE PRATT (East Metropolitan) [3.47 pm]: I wholeheartedly agree with this motion. The nuclear industry has been using debates about climate change to legitimise itself in the face of its own decline. I am very disappointed that the Howard government is also on the bandwagon of this issue. We need to change the way we produce and use energy. My colleagues Hon Ken Travers and Hon Paul Llewellyn have commented on that. Nuclear power is not a solution. However, as the Leader of the Opposition acknowledged, it is terrific that this motion is giving us a chance to put some of those issues on the public record.

It is important to note that Australia produces 20 per cent of the world's uranium. Already it is not an insignificant player in world uranium markets. However, uranium mining represents only one per cent of Australia's mining activities. In that context, if we make a moral and strategic decision to not mine uranium in Western Australia, it would be an important contribution. Even though it is not a great proportion of our mining activity, the availability of this commodity is highly relevant to uranium markets around the world. Unfortunately, the production of nuclear power creates dangerous waste for which the world has not yet found any sustainable solution.

I would like to comment briefly on a point made by Hon Paul Llewellyn. He said that nuclear energy is not greenhouse neutral. The nuclear industry is trying to play into the greenhouse debate by saying that nuclear power is a solution to our greenhouse problems. The simple fact is that huge amounts of energy are required during the construction of a nuclear energy plant. Much of that energy is derived from fossil fuels. A nuclear power plant has to be in operation for between seven and 11 years before it becomes greenhouse neutral. That is to pay back the energy used in its construction. That is quite different from other forms of energy production that are renewable and have a much lower ratio. Nuclear energy has a much higher ratio in that there is a small amount of embodied energy versus a large amount of energy produced. That does not include, as Hon Paul Llewellyn pointed out, the fact that there are also quite large transport and production costs in uranium mining that are not greenhouse neutral.

It is also interesting to note that the world's high-grade uranium ores, including those in Australia and Western Australia, will last only another 30 to 50 years. Most uranium is in poor grade ores. The use of these ores in nuclear power would increase greenhouse gas emissions. In that sense, if people are trying to look to nuclear power as a solution to greenhouse gas issues, it would be only a short-term solution. Uranium, like other fossil fuels, is a finite resource. Ultimately we have no choice other than to look for renewable sources of energy.

We are at a point at which we need to take action on climate change. The debate within Australia on whether nuclear power is a viable way of addressing climate change is a furphy because we need to take immediate action. Nuclear power plants take many years to come to fruition; environmental approvals must be gained, planning and construction must be undertaken and it must be ensured that all the safeguards are in place. An optimistic estimate of the amount of time it would take to rapidly put one in place is 12 years.

Mr Howard has neglected to include in his national inquiry the location of a nuclear energy plant in Australia. He is seeking to have a debate about whether nuclear energy is an option for Australia but is not brave enough to look at the viable locations for such a power plant.

Hon Norman Moore: Why would you do that when you haven't decided whether you need one?

Hon LOUISE PRATT: Inevitably, it would have to be located somewhere. We can put a positive gloss on this debate but at some point we need to deal with the negative side of it.

Hon Norman Moore: When you decide to have a nuclear power station, that is when you decide where it is going. If you are not going to have one, you do not need to decide where it is going to go.

The PRESIDENT: Order! I think the point has been made either way.

Hon LOUISE PRATT: If we were to rely on nuclear energy to make a real contribution to the abatement of greenhouse gas emissions, we would need 72 new nuclear power plants to meet the targets of the Kyoto Protocol. They would be required within the 15 European nations by 2012. Only 15 plants have been constructed over the past 15 years. If that number of nuclear power plants were built, our uranium reserves would run out very quickly.

Cost implications are also significant. Nuclear energy is not cheap. In 2003 a Massachusetts Institute of Technology report, "The Future of Nuclear Power", estimated that electricity from a hypothetical nuclear power plant in the US would have cost approximately 9c per kilowatt hour. In comparison, large-scale wind power would have cost about 6c. This cost margin would increase further as the cost of wind power continued to decrease.

I turn now to the costing of nuclear power. The nuclear industry - in a sense, the fossil fuel industry as well - has always failed to calculate the true cost of producing energy. We need to store nuclear waste products thousands of years into the future. No-one has done any real costing. The costing that has been done is no real indication of how we can manage those costs in the long-term future. I have some information about what Britain is doing to try to decommission nuclear power plants. Chancellor Gordon Brown told ministers that the cost of cleaning up Britain's nuclear fuel facilities is £90 billion. That figure is considerably higher than the figures produced by the government agency overseeing the task. Imagine if we had £90 billion to put into building new energy facilities. This is the decommissioning cost. The British government is looking to invest in new forms of energy and renewable energy but will have to fork out up to £90 billion over time to decommission nuclear power plants. Those costs were never factored into the initial costings for nuclear power.

I would like to touch on Australia's nuclear political history for a moment. Uranium exploration began in 1944. I suppose that is the beginning of the nuclear age. In 1948 the Australian government offered tax-free rewards for uranium ore discoveries. We have a long record both for and against a nuclear industry in Australia. The ANZUS Treaty was signed in 1951. Australia and Britain developed capable long-range missiles, which were tested in Australia but were never realised. British atomic testing took place in the Montebello Islands off Western Australia and also in Maralinga. The Lucas Heights nuclear reactor was built in 1958. In 1968 the Nuclear Non-Proliferation Treaty was established, which called for a halt to the spread of nuclear weapons and their capabilities. Australian Prime Minister John Gorton refused to sign the treaty at the time, but we became a signatory when Gough Whitlam became Prime Minister. In the late 1960s, plans for a nuclear reactor at Jervis Bay in New South Wales were approved. It was proposed as a power plant but by the late 1960s there was a considerable drive for Australia to become a fully fledged nuclear power with many nuclear reactors with weapons-producing capabilities. Decades later it was revealed in cabinet papers that the government also supported the venture because, to quote the cabinet papers, "the Commonwealth will acquire a facility with important long term defence implications". I am not saying that an agenda behind nuclear power in Australia connects us with wanting to be a nuclear power in a defence or weapons sense. However, that is not to say that these things are not possible. Antinuclear demonstrations grew as a response to that debate at the time. At the heart of the debate we are having now are many of the community debates that were held in the 1970s and 1980s. We witnessed French nuclear testing during the 1990s. We are now dealing with greenhouse gas emissions and nuclear power. There is a long history to these debates in the community that are centred around the morality of nuclear power because of its inherent unsafeness, the problem of waste management and the fact that we have no guarantees that nuclear material will not fall into the wrong hands to be used as weapons. We can see that the federal government is looking at trying to create various tight agreements in that regard but the simple fact is that we can create as many agreements as we like, but these substances have a potency for thousands of years. That is the history we are dealing with. We can say, yes, let us have an agreement and we will make it rock solid because we can trust our political counterparts in China, India and America, and that we feel confident that we can export our uranium to those countries. However, the simple fact is that the materials, once they are in a weapons or waste form, cannot be disposed of easily. If they fall into the wrong hands, they can do untold damage to the world and society. It is acknowledged that one of our great security concerns at the moment regarding terrorism is unaccounted-for nuclear weapons. In due course, those weapons could fall into the wrong hands. These are very real concerns because we know that there are unaccounted-for nuclear weapons.

An issue that I was not particularly aware of, but is in the same vein as managing things in the long term, concerns the fact that the nuclear power industry in America is short handed. It is so much so that workers often put in very long hours. Critics warn that the safety of nuclear plants could be endangered by employee fatigue. We need an incredibly stable work force to manage a nuclear power plant. It is not something that can be guaranteed will always be in place over a long period. A nuclear power plant needs to be decommissioned very carefully. There needs to be absolute control at all times. Union officials and plant workers say that sometimes a remarkable number of hours are often worked and that overtime has increased greatly over recent years as the pool of skilled employees shrinks. The workload has become so onerous that the Nuclear Regulatory Commission, which gives consideration to safety issues, is considering whether to tighten regulations on how long people can work. Examples have been given about employees whose job it is to monitor the safety of nuclear plants. The plants operate 24 hours a day, seven days a week. If an employee has not been relieved, he cannot leave his workstation because of security and safety implications. The Nuclear Energy Institute states that, excluding contractors and security workers, the number of nuclear plant workers numbered 56 400 in 2002. In 2003 the figure dropped to 55 700. In 2004 it dropped again to 53 750. The International Brotherhood of Electrical Workers, which represents nuclear workers in Illinois and other parts of the United States, stated that staffing has been in decline for years. It states that of the plants it represents in Illinois, its membership has fallen from 2 175 to 1 500 this year. The NRC has been studying the issue of worker fatigue since 1999 and it has no certain indication of when a decision will be made. The long delays are attributed in part to the agency having to deal with security concerns at nuclear plants after the September 11 attacks. As such, the agency

responsible for reporting on this issue has not done so. A nuclear plant is an amazingly complex machine that runs 24 hours a day, seven days a week. It demands constant human attention and meticulous maintenance. Many other points have been raised regarding the ongoing skill and commitment that is required to manage a nuclear power plant.

I have no doubt that Australian workers could manage a nuclear power plant. We have the technical expertise to do that. Issues surrounding nuclear waste and nuclear energy will belong to us for thousands of years into the future. We know how uncertain human history can be at times. I do not think that that is a legacy that we should be leaving for future generations of Australians.

John Howard has established a nuclear energy task force. I believe that the task force is a bit of a furphy for a couple of other issues that he wants leverage on. He wants to see an expansion of uranium mining in Australia. He also wants Australia to get a seat at the nuclear table. He believes that Australia should also be enriching uranium and value adding to it in some way before it is exported. In fact, Howard has said this quite clearly. He said that if we are not a nuclear supplier, we will be shut out of certain gatherings. Howard very much wants to up the ante.

Hon Norman Moore: I assume you are referring to the Prime Minister, Mr Howard.

Hon LOUISE PRATT: Yes. Prime Minister Howard wants to up the ante and have a much greater involvement in nuclear matters. We are already not minor players in that sense.

Hon Norman Moore: Yes, as a result of the three mines policy brought in by the Hawke government. Come on; be a bit consistent about this. Have you marched on the South Australian Parliament?

Hon LOUISE PRATT: I have not been to Adelaide in a while.

Hon Norman Moore interjected.

Hon LOUISE PRATT: Spain is the fourth European country to begin to phase out nuclear power. It is interesting that nuclear power is very much in decline in Europe. The nuclear industry in Spain recently launched a big campaign to try to revive itself. I am pleased to say that the Spanish government is having none of that. The nation's President has confirmed that the country's eight operating plants will be phased out in favour of clean, renewable energy. If Spain can do it, Australia can certainly do it considering its supplies of natural resources. Industry lobby groups in Spain have been trying to sell 10 new nuclear power plants. They have been fighting hard for legislation that would allow existing plants to operate past their planned retirement dates. The President has confirmed the government's commitment to the phase-out in his state of the nation address. I think that he is showing true leadership in preparing for the phasing out of this dangerous and polluting problem. What should Australia be doing? We should be looking at all renewable options - solar power, wind power, gas-to-liquid technologies and clean coal.

Hon Norman Moore: Clean coal?

Hon LOUISE PRATT: I should have said cleaner coal. Fossil fuels are very much part of our energy mix at the moment. We need to improve them and make them cleaner as much as possible. Other than that, I very much support the growth in renewable energy in Australia. Expanding renewable energy is the debate that Australia needs to have. The Prime Minister has created a debate about only one source of energy for Australia's future. An energy white paper that discussed Australia's future energy needs was released five years ago. What has the federal government done with that white paper? It has done practically nothing. Five years on, the federal government has established a nuclear energy task force. Another concern I have about this inquiry is that it cannot consider the economic and environmental costs of nuclear power without knowing where a nuclear power station will be located. I acknowledge -

Hon Norman Moore: Alannah MacTiernan said that it is going to be in Guildford. She obviously knows something that nobody else knows.

Hon LOUISE PRATT: Of course it will not be in Guildford. The Minister for Planning and Infrastructure is being inflammatory for the sake of the debate. This is about creating a debate about nuclear issues and attaching sentiment to certain places. I refer to places in my electorate like Kalamunda, which has firmly placed on the record that it does not want nuclear power in this state. That is why the Shire of Kalamunda has drawn a line around its boundaries and stated that it is a nuclear-free shire. I commend the Shire of Kalamunda and other local governments for taking that stance.

Prime Minister Howard is hustling us down a nuclear path. I maintain that a resource-rich Australia does not need nuclear power. Unfortunately, the task force that Howard has put together is, in part, eschewed towards nuclear development. The task force will be chaired by Ziggy Switkowski, a former chief of Telstra. Members might be interested to know that he has a degree in nuclear physics.

Hon Norman Moore: Which, I suspect, puts him well ahead of you when it comes to understanding this debate.

Hon LOUISE PRATT: I am sure that it does at a scientific level. However, that is not necessarily the case when it comes to making a judgment.

The review begins this month. A draft plan for public consultation should be released by November 2006. That is an incredibly short turnaround for such a big issue. The task force comprises Professor George Dracoulis, the head of the nuclear physics department at the Australian National University, and Warwick McKibbin, who is an economist and a member of the Reserve Bank of Australia. They have referred to energy prices and energy security as the key considerations for future economic growth in a lower-emissions future. I agree with that. However, the management of environmental issues must be placed firmly on the table. I do not believe that that issue will get the priority it deserves in Howard's task force.

The motion moved by Hon Ken Travers canvasses most of the main concerns with nuclear power and the implications for uranium mining and waste dumping in Australia. The kind of experts I would like to see on Howard's task force -

Hon Norman Moore: Prime Minister Howard.

Hon LOUISE PRATT: I apologise for using unparliamentary language. The kind of experts I would like to see on Prime Minister Howard's task force are the likes of Professor Ian Lowe. As president of the Australian Conservation Foundation, he has provided a good overview of the kinds of issues that must be addressed when we consider whether nuclear power should be a part of Australia's solutions to global warming.

Hon Norman Moore: Does he have a particular point of view?

Hon LOUISE PRATT: He has a particular point of view.

Hon Norman Moore: Why should he go on the task force if he has a particular point of view?

Hon LOUISE PRATT: The task force should comprise stakeholders with a diverse range of views.

Hon Norman Moore: You have been talking about people having a bias.

Hon LOUISE PRATT: I accept the fact that people have implicit and intrinsic bias in most of the things they say and do. That is why we need a task force that is diverse. The task force that Howard has put together is not diverse.

Hon Norman Moore: It is Prime Minister Howard.

Hon LOUISE PRATT: Yes, Prime Minister Howard. Ian Lowe has canvassed the fact that nuclear energy - I will go through Hon Ken Travers' motion step by step - is too expensive compared with alternative strategies. Bearing in mind the price of nuclear power and the cost of decommissioning nuclear power plants, the investment required for nuclear power is much too expensive compared with that required for renewable energies.

Debate interrupted, pursuant to sessional orders.

Sitting suspended from 4.15 to 4.30 pm