26 April 2005

Submission to the Inquiry into developing Australia's non-fossil fuel energy industry

Case study into the strategic importance of Australia's uranium resources

Company overview

Wind Prospect is a leading independent wind energy developer, constructor and operator, working in Australia, UK, Hong Kong and Ireland.

In developing this clean and sustainable energy supply we aim to work cooperatively with the local communities whilst offering land owners opportunities to diversify and support their core business needs. This may take the form of working with farmers to develop conventional wind farms, or with energy-intensive industry to promote distributed and embedded on-site supply.

Our goal is to find the right balance between the global benefits of wind energy and the impact of wind generation on the local environment.

Outline to Wind Prospect's response

Wind Prospect would firstly like to commend the Government for showing support for the development of Australia's non-fossil fuel industry. It is our belief that the optimum energy supply solution, both for Australia and internationally, involves a mix of many energy sources, and that there exists a place for nuclear energy as a source of base load electricity.

Based on recent international experience, however, we are concerned that the nuclear power and uranium industries signify unnecessary potential economic uncertainty and political risk for Australia. We put forward the argument that wind energy offers much more promise.

Four terms of reference were outlined by the Inquiry in their investigation of the strategic importance of Australia's uranium industry.

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

Wind Prospect would like to focus on the first three criteria in addressing the Inquiry.

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Comments were sought on the following points...

Global demand for Australia's uranium resources and associated supply issues

In addressing this criterion we will show that the economic viability of uranium and nuclear power is not certain. We point to specific examples to show the vulnerability of the nuclear fuels industry to market forces.

The most potent recent example of failure of the nuclear industry has been the case of British Energy in the UK. In 2001, the British Government introduced New Electricity Trading Arrangements which resulted in the price of electricity dropping considerably. British Energy, the large privatised nuclear energy producer, was unable to compete. British Energy was only able to avoid insolvency via a government bail-out of 410 million pounds, and it still remains unclear whether British Energy will be able to achieve financial stability. This example shows clearly that the future of the nuclear power industry is by no means guaranteed.

It has been pointed out that there is an international resurgence in the construction of new nuclear reactors, particularly in Asia. More reactors of course means more demand for Australian uranium. However, this must be taken in context with the rate of decommissioning of old reactors. In the United States and most of Western Europe, there are few current plans to build new reactors. Most of the existing reactors are now at least 25 years old. The subsequent decommissioning of these reactors will mean that the net demand for nuclear fuels is not expected to increase dramatically.

While Australia holds a significant percentage of the world's known uranium reserves, Australian uranium has not always been competitive in the international market. This has been the case in recent memory. According to the Uranium Information Centre, during 1990-97 the market spot price for uranium was lower than the cost of production at Ranger. During that time, Ranger contracts were met through the purchasing of cheaper concentrate from countries such as the Republic of Kazakhstan. While Australian uranium companies can guarantee security of supply to their customers, they are not always able to compete on world markets.

The nuclear power generation industry can be characterised by higher capital costs and lower fuel costs compared to other fossil fuel base load generating systems. For this reason it has been asserted that changes in fuel prices have less of an impact on the per-unit cost of energy of nuclear power than they do for fossil fuel power. However, the lower cost of fuel for nuclear energy is what gives it its competitiveness, and rises in the costs of nuclear fuels are expected and could effectively price nuclear energy out of the market.

The costs of decommissioning and spent fuel storage need also to be brought into the equation. These are significant costs that are not always included when discussing the economics of the nuclear industry. In recent times there has been a trend internationally to transfer the costs of disposal onto the supplier. An interesting analogy is a tax being introduced on the price of chewing gum with the proceeds paying for the clean-up of the resulting litter. This is currently being proposed in the Republic of Ireland. Such a scheme being applied to uranium could make Australian uranium even less competitive.

These factors contrast drastically with the wind energy industry. Being the fastest growing energy source in the world, the cost of wind energy is steadily decreasing. It is expected that the cost per unit of wind energy will be on a par with its fossil fuel counterparts in 10 to 15 years. The current capital cost of building a large wind farm is around $2 million per MW compared to $2-3 million per MW for a nuclear power plant. On top of that, there are no fuel costs and so wind energy is not subject to the vagaries of international commodities markets. With further technological advances, international climate change strategies and growing public support for green energy schemes, wind energy will continue to improve its viability. The same cannot be said for nuclear power.

The nuclear debate has always been politically risky in Australia. Developing the uranium and nuclear power industries in this country comes with the very real risk that they will fail to live up to all their promises. A situation where Government assistance is required in order for the nuclear industry to remain viable would be difficult for the Australian public to swallow. In contrast, wind energy has the support of the vast majority of the Australian public.

Strategic importance of Australia's uranium resources and any relevant industry developments

In addressing this criterion, we would like to focus on the implications of developing a nuclear power industry in Australia on our labour market. While it is true that Australia's uranium resources are impressive, the same cannot be said for Australia's nuclear expertise. If a nuclear power industry was developed in Australia, practically all of the expertise would need to come from overseas. This represents a significant investment by this country that will result in little benefit for Australians.

In contrast, Australia's renewable energy industry is based on considerable home-grown expertise in all areas, including research and development, manufacturing, engineering, operations, maintenance and project management. This is true particularly for the wind energy industry, where manufacturing and assembly plants are providing significant employment opportunities in Tasmania, and a wind turbine blade manufacturing plant is planned for Victoria. This represents real jobs for Australians, particularly in rural areas.

Potential implications for global greenhouse gas emission reductions from the further development and export of Australia's uranium resources

Effectively addressing climate change will require a mix of energy generation sources – a balance between schedulable base load power and cleaner, more intermittent, renewable energies. Nuclear power has often been promoted as the best of both worlds – schedulable base load power that doesn't emit greenhouse gases. This, however, is incorrect.

When quantifying the greenhouse gas intensity of an industry, it is necessary to consider the lifecycle, from mining to decommissioning. While the production of steam in a nuclear reactor is essentially greenhouse-free, the same is not the case for the mining, transport and enrichment of the uranium concentrate and the decommissioning of the plant. Uranium enrichment facilities in the United States (where Australian uranium is processed) are powered by fossil fuel energy at a rate of thousands of megawatts. The greenhouse gas cost of nuclear power has been estimated at around a third of that of conventional fossil fuel plants when the highest quality uranium ore is used. As the quality of the ore drops, more processing is required and the greenhouse gas emissions become comparable to (or above that of) fossil fuels. Only a small proportion of uranium ore available is of the highest quality.

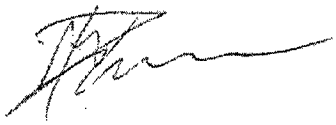
The greenhouse contribution in the construction of a nuclear power facility needs to also be examined in detail. The embodied energy of a massive concrete structure such as a nuclear power plant is considerable, and this is largely done by utilising fossil fuel sources. As oil prices increase, the construction costs for nuclear power plants will also increase, making the economics of these plant even worse. The amount of fossil fuel required in the mining, enrichment, construction and decommissioning stages ruins the argument that nuclear power is a valid answer to climate change.

In contrast, the greenhouse gas emissions caused by modern wind farms only occur during the manufacturing process of the wind turbines and towers. A typical wind farm will produce the amount of energy used to built it, and therefore become greenhouse gas neutral, in approximately six months. Over the lifetime of a wind farm, this equates to around two percent. From that point, wind turbines

produce no pollution and no waste. After decommissioning, a wind farm site is returned to its original state. Wind power can therefore be considered a truly clean energy source.

In light of these facts, wind energy is clearly the better option in reducing global greenhouse gas emissions. As with our uranium supplies, Australia's wind resources are world class and offer great potential.

Your Sincerely



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