PUBLIC PETITION TO STOP NUCLEAR POWER PLANTS IN MALAYSIA

To

Dato' Sri Mohd Najib Bin Tun Haji Abdul Razak, Prime Minister of Malaysia

Members of Cabinet

National Energy Commission

Greetings.

We, the undersigned, say 'NO' to the Malaysian government's plans to build nuclear power plants (NPPs), because we are concerned about the health, environmental and security risks from nuclear waste, nuclear accidents, nuclear terrorism and nuclear war. Malaysia's substandard maintenance culture and defective corporate and institutional governance could lead to catastrophic nuclear accidents. At a time when many countries are struggling to overcome national debt and the global economy is facing a financial crisis and the threat of economic recession, the Malaysian government must act prudently and avoid the trap of investing limited resources in nuclear energy, recognised as a proven failing economic enterprise, marked by the escalating costs of building new nuclear power plants, high insurance premiums, and the cost of decades-long decommissioning.

1. Health and safety

The Malaysian government has not seriously taken into account the health and safety aspects of nuclear energy. Murphy's Law dictates that there is no such thing as nuclear safety or a fail-safe nuclear reactor. Human error and unpredictable events are unavoidable, making nuclear reactor safety uncertain. The recent catastrophic nuclear accident in Fukushima has brought Japan to its knees and persuaded many countries, including Germany and Italy, to phase out nuclear power and invest in renewable energy.

Even without such accidents, a nuclear power plant is dangerous to health. A scientific study, published in the *European Journal of Cancer Care* in 2008, revealed that leukaemia death rates in American children living near nuclear power plants in the United States have risen sharply in the past two decades. The greatest increases in mortality rates occurred near the oldest NPPs. Whereas, declining rates were observed near plants that were closed permanently in the 1980s and 1990s. The 13.9% rise in deaths near older NPPs suggests a potential effect of greater radioactive contamination near nuclear reactors.

In a 2007 meta-analysis of 17 research papers, covering 136 nuclear sites in the United Kingdom, Canada, France, the United States, Germany, Japan and Spain, the incidence of leukaemia in children under nine, living close to the sites, showed an increase from 14% to 21%, while death rates rose from 5% to 24%.

A German study, published in the *International Journal of Cancer* in 2008, found a 60% increase in cancers and a 117% increase in leukaemia among young children living near all 16 large German NPPs between 1980 and 2003. The most striking finding was that children living within 5 km of NPPs were more than twice as likely to get cancer as those living further away. This finding has been accepted by the German government.

Reports indicate that the Malaysian government has identified several potential sites for the construction of two nuclear reactors. But the Rakyat have been kept in the dark and are very concerned about the lack of transparency and accountability. As lethal radiation is odourless, invisible and knows no boundaries, every Malaysian citizen has a right and a civic responsibility to oppose the introduction of nuclear energy, when the worldwide trend is to invest in and rely on renewable sources of energy.

2. Environmental and Carbon dioxide issues

The Malaysian government has erroneously underestimated and played down the harmful environmental impact of a nuclear power plant. The government's undertaking at the 2009 Copenhagen climate change conference to voluntarily reduce 40% carbon emissions intensity per GDP by 2020 is laudable, but opting for nuclear energy to achieve this goal is a fundamentally flawed decision.

Nuclear power is not environmentally friendly or safe. The nuclear fuel cycle itself – uranium mining, extraction, fuel enrichment, plant construction, maintenance and monitoring, processing and storing radioactive waste, decommissioning and cleaning up radioactive contamination – requires an enormous supply of energy, much more than other energy sources.

According to international studies which take into account the whole nuclear fuel cycle, a nuclear power plant indirectly emits between 376,000 and 1,300,000 tonnes of carbon dioxide per year. Compared to renewable energy, nuclear power releases four to five times more carbon dioxide per unit of energy produced.

Nuclear power plants produce ultra-hazardous, highly radioactive waste that will remain radioactive for more than a hundred thousand years. No country in the world has managed to safely dispose of its nuclear waste permanently, as currently there is no such technology.

All over the world, NPPs store radioactive waste temporarily under water in pools on site. Controversial plans for permanent underground storage in deep geologic repository sites have yet to be implemented. It remains impossible to predict whether any designated area will remain dry or geologically stable. Malaysia is geologically made up mainly of limestone which is highly porous, unstable and prone to erosion, making it highly unsuitable for the storage of long-lived, radioactive waste. The recent unprecedented flooding in the Peninsula should serve as a warning that NPPs are unsuitable for Malaysia and incompatible with safety.

Moreover, climate change remains unpredictable and may trigger unprecedented natural disasters which could cut off the electricity supply to a reactor's cooling system and cause overheating.

This would endanger the safety of a nuclear power plant and possibly result in a nuclear meltdown, as in Fukushima.

3. Cost and liability

The Malaysian government has erroneously underestimated the economic cost of nuclear energy, guesstimating that nuclear energy would generate electricity more cheaply than other sources of energy.

Nuclear energy is not cheap, contrary to disinformation circulated by the nuclear industry. The true economics of nuclear energy are masked by the enormous subsidies for expensive reactor construction, uranium enrichment, nuclear waste management, insurance against accidents, government loan guarantees, and decommissioning. All funds channelled into a suspect, lame-duck nuclear industry will take away limited resources from much needed research and development of renewable energy and energy efficiency technology.

Moody's Corporate Finances (the ratings and risk firm) recently estimated that nuclear energy's capital cost per kilowatt was 275% higher than that of wind energy and 150% higher than solar energy. It projects that nuclear costs will rise further, while the cost of other renewable energy sources will be substantially reduced. Numerous Wall Street studies and independent energy analysts have estimated that electricity from renewable energy sources costs an average of 6 US cents (about 18 sen) per kwh, while electricity from nuclear energy is about 12 to 20 US cents (about 36 to 60 sen) per kwh, excluding the cost of any catastrophic nuclear accident. Recently, Versicherungsforen Leipzig, a German specialist actuarial and insurance company, revealed that full insurance against a nuclear disaster would increase the price of nuclear-generated electricity to 2.36 euros/kwh (about RM9.50/kwh).

This shows that the real cost of nuclear energy is very much higher than the Malaysian government's estimated cost.

4. Limitations on liability for catastrophic accidents

NPPs are largely subsidised by governments and owned by government and/or private investors. In the event of a nuclear catastrophe, the government involved would rule on compensation. In the United States, the Price-Anderson Act limits the liability of a nuclear plant operator for any accident in the US. If damages exceed what plant owners can pay, the US government will foot the bill. It is estimated that the true cost of liability in a nuclear accident would amount to $600 billion, of which the nuclear power company would pay only 2%, while the US government would meet the rest. In this way, the financial risks of NPPs are borne largely by taxpayers.

The Malaysian Atomic Energy Licensing Act 1984 does provide for a liability regime in the event of a nuclear catastrophe. However, the Government is currently reviewing the entire Act. How extensive and all encompassing the new Act and the Regulations would be, remain to be seen.

5. Insurance liability

It is most disturbing that NPPs are granted indemnity from the burden of carrying full third-party insurance liability costs, in accordance with the Paris convention on nuclear third-party liability, the Brussels supplementary convention, and the Vienna convention on civil liability for nuclear damage. Such limited insurance does not cover the full cost of a major nuclear accident, as in Chernobyl and Fukushima.

In other words, taxpayers would have to bear the cost of compensation. In assessing the cost of compensation for the Fukushima disaster, analysts have currently assessed it at 86 billion euros. According to Versicherungsforen Leipzig, nuclear power plant accidents carry heavy liabilities, long after the actual event. These include medical costs for people with cancer, compensation for families of victims, costs for rehabilitating radiation-contaminated land and water, rebuilding infrastructure, and compensation for loss of economic productivity.

In all these liabilities, it will be taxpayers who would have to bear a substantial financial burden. It is important for the Rakyat to be made aware of this.

6. Substandard maintenance culture and institutional governance

There is little doubt that Malaysia has a substandard maintenance culture and a poor track record in governance and performance by public institutions and agencies which deal with health, safety and environmental regulations, legal compliance and liability.

For example, when the government approved the setting up of Mitsubishi's Asian Rare Earth (ARE) factory in 1982 in Bukit Merah, Perak, to extract rare earth elements from tin tailings, the approved technology had already been banned in 1971 in Japan. In the process, radioactive thorium waste, with a half-life of 13.9 billion years, was dumped in a pond and a field next to the plant and other illegal dump-sites.

Disregarding a High Court injunction against the ARE company, the Atomic Energy Licensing Board (AELB) issued a licence to ARE to continue operations in 1987. The factory finally closed in 1994, but decommissioning and decontamination of the factory only took place in 2003 and 2005. For almost 30 years, about eighty thousand 200-litre drums containing radioactive waste were stored in a concrete building at a dumpsite in the Kledang Range. The corroded drums and rainwater seepage caused leaking of contaminated water into the environment. It was only in January 2011 that work was finally started to build an underground storage system. The ongoing clean-up is estimated to cost RM300 million.

These incredible events expose the government's unwillingness to protect the public from health and environmental hazards, in the face of profit-driven corporate pressure. They also expose the AELB's lack of independence, competence and capacity to deal with radioactive waste.

In September 2006, the American nuclear submarine, *USS Houston* which had made port calls at Japan, Singapore and Port Klang, reported that it was leaking radiation. The Singapore and Japanese governments asked the United States for detailed information and deployed monitoring mechanisms. However, Malaysia's Ministry of Defence, under then Defence Minister Datuk Seri Najib Tun Razak, declared that no probe would be carried out or action taken, as no report or information had been received or lodged on the radiation leak. But foreign reports confirmed that all the governments affected by the leak had been given reports of the incident. This is just another example of government apathy and/or incompetence in dealing with nuclear hazards.

In 2008, the Ministry of Natural Resources and Environment (MNRE) and the AELB gave speedy approval for the Lynas Advanced Materials Plant (LAMP) to build a refinery in Gebeng, Pahang, and to start operations. This was done with incomplete environmental and radiological impact assessments and without public participation in the decision-making process.

The entire approval process was carried out without due diligence, compliance with and enforcement of basic procedures and rules. This cavalier approach, which ignores public safety and environmental integrity, once again shows that regulatory authorities are incapable or unwilling to deal with ultra-hazardous activities.

As with the Asian Rare Earth factory in Bukit Merah, there are ongoing public concerns about the inability of the AELB to safely monitor the Lynas operation in its environmentally proper storage and disposal of radioactive waste, and eventual decommissioning. This was revealed when the Vienna-based International Atomic Energy Agency (IAEA) made strong recommendations for the AELB to improve its competency and independence, in the face of growing public criticism and diminishing confidence in its performance.

7. Conclusion

The official reasons for introducing nuclear energy into Malaysia are not supported by the facts. Malaysia has abundant energy sources and a greater supply than demand, including newly found gas and oil reserves off East Malaysia.

The nuclear industry and other vested interests in the corporate and academic world have been disseminating disinformation to an uninformed Malaysian public. It is patently clear that nuclear energy is not cheap, clean or safe. Incontrovertible evidence exists that nuclear energy is economically and environmentally unsustainable, as well as damaging to the health of present and future generations.

The recent catastrophic nuclear accident in Fukushima has been a wake-up call for countries operating nuclear power plants and for those planning to build their first nuclear reactors. Many are phasing out nuclear power and turning to renewable energy, energy efficiency and energy conservation.

The most dangerous and unacceptable feature of nuclear power is that there is no safe method of disposing of nuclear waste which will remain lethally radioactive for tens of thousands of years. Plutonium has a half-life of 24,400 years. In other words, it will take 24,400 years for the radioactivity of plutonium to be halved.

Nuclear waste must therefore be managed safely for at least 100,000 years or ‘forever.’ Yet, there is no social institution on the planet that has lasted for more than 2,000 years. The reality is that, if medieval Man had used nuclear energy, today we would still be managing his nuclear waste. To bequeath such a legacy to future generations of Malaysians is unconscionable, unethical and immoral.

Malaysians would like the government to show genuine commitment by investing resources in research and adoption of sustainable renewable energy and energy efficiency technology.

We, the undersigned, say 'NO' to Nuclear Energy and call on the Government of Malaysia to apply the Precautionary Principle, abandon its plans to build Nuclear Power Plants, and instead take the path to Safe, Sustainable Renewable Energy.

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