

# Nuclear energy — is it truly a viable option for this province?

March 22, 2008



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**T**HE NUCLEAR INDUSTRY has a long history of controversy. It began with the search for the ultimate weapon in the Second World War and then continued as the potential ultimate energy source. "Electricity too cheap to meter," was an early (and absurd) slogan and technical solutions for nuclear waste were optimistically just around the corner.

Environment North has been involved in nuclear issues since the late 1970s. A coalition of groups opposed conclusions of "The Management of Canada's Nuclear Waste" (1977), popularly known as the Hare Report. We cited technical deficiencies in the plan to dispose of nuclear waste in Northern Ontario and questioned assumptions in the report such as: "There are extensive areas of Crown land that are not peopled at all."

Construction of new reactors halted in the 1980s in North America, Europe and Japan because of huge financial costs and safety problems such as Chernobyl and Three Mile Island. Nonetheless, some parts of the world plan a revival of the nuclear industry. Finland has a reactor under construction. China plans to add 50 new reactors. George W. Bush has promised many financial incentives for corporations willing to build new nuclear plants. Currently Ontario (primarily southern Ontario) relies on nuclear energy for about 50 per

cent of electrical supply and the McGuinty government has just confirmed a major expansion.

Environment North remains deeply concerned about the legacy and future of nuclear energy, about the financial and environmental costs as well as the risks to security and safety.

Nuclear energy has left Ontarians in debt and with nuclear waste accumulating at the three reactor sites — Pickering, Bruce and Darlington Generating Stations. The Darlington reactors cost four times the original estimate and were responsible for most of a debt of \$39 billion for Ontario Hydro. The "debt retirement charge" on electricity bills every month is a reminder. Costs of refurbishing aging reactors have consistently gone well over budget and costs of constructing a new plant are tens of billions of dollars.

The nuclear lobby slogan is now "clean and

green" and nuclear energy is promoted as part of the solution for climate change.

However, there are numerous environmental problems including the production of greenhouse gases, primarily carbon dioxide, in the nuclear fuel cycle.

A massive carbon debt has accumulated before a reactor produces its first kilowatt hour. Mining of uranium, milling, refining, transportation and plant construction (concrete and steel) all are carbon intensive processes. Future construction of a waste storage site and final decommissioning of reactors will also make major carbon contributions. Estimates of the amount of carbon emissions associated with nuclear energy fuel cycle are approximately 40 per cent of the emissions of those produced by the natural gas fuel cycle.

Many mine, milling and refinery sites remain toxic and clean-ups delayed. During electrical production small amounts of radioactive substances are released and large quantities of water for cooling are required.

At the end of the cycle is the problem of nuclear waste; safe storage (we hope) for hundreds of thousands of years. No country has demonstrated a real solution to this problem after nearly 50 years of the nuclear power experiment. Canada's plan is almost certainly geological storage in northern Ontario, at an "estimated" cost of \$25 billion in 2002 dollars.

Is the moderate greenhouse gas saving provided

by nuclear energy worth the costs and risks?

- Nuclear power is dangerous. There is the future risk of more nuclear accidents and weapons as well as nuclear terrorism.

- Nuclear energy is not "clean and green" and produces greenhouse gases.

- Nuclear energy is very costly.

In the past, people in Northern Ontario have contributed to the cost of nuclear power but without benefits. Future power benefits are unlikely but providing a home to the waste is almost guaranteed.

Most of the developed world is rejecting the nuclear option. There are alternative solutions that are safer, less costly, provide economic benefits and address climate change. Organisations such as the Pembina Institute have developed electrical energy mix models for Ontario that phase out nuclear energy and reduce greenhouse gas emissions. These models involve a suite of policy and technological tools that include conservation, energy efficiency, renewable energy co-generation and waste-heat recycling.

Any strategy for electrical power supply needs to be examined carefully in terms of the financial, social and environmental costs of complete energy fuel cycles. Will the Ontario public have the opportunity to choose?

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