

Fact Sheet

Risks from Nuclear Power Development In Northwestern Alberta

Several nuclear power companies have been exploring the possibility of building nuclear reactors in northwestern Alberta. In March, 2008, Bruce Power Alberta submitted an application to build up to four large reactors near Peace River, about 500 km north of Edmonton. Together, these would produce between 3,000 and 4,400 megawatts of electricity. The French nuclear company Areva, the largest nuclear company in the world, has made exploratory visits to both Whitecourt and Peace River. The Peace River Environmental Society, a non-profit citizens' group based in the Peace River region, believes the following risks are significant:

Ground and Surface Water Contamination: Nuclear reactors pose a serious risk of radioactive contamination of ground and surface water. All reactors are known to emit radioactive substances into the surrounding water. The proposed Bruce Power site is right on the Grimshaw Gravels Aquifer, which provides fresh drinking water to 7,500 households. Any reactor near the Peace or Athabasca Rivers would send contaminants north into the Peace/Athabasca Delta and from there to the Slave and Mackenzie River systems. These systems empty into the Arctic Ocean.

Airborne Contamination: There is a serious risk that the prevailing winds could spread radioactive substances over a large area that includes farmland and lands used for hunting by aboriginal and other people. These substances include gases which break down into such substances as Strontium 90, which concentrates in the milk of cows and other mammals, and Cesium 137, which concentrates in the muscle tissue of animals. Airborne tritium (radioactive hydrogen) would enter the tissues of all living things, emitting radiation that is known to cause cancer, birth defects and genetic damage.

Local Food Contamination: The long-term viability of farming is at risk with one or more nuclear reactors located adjacent to farmland. The Alberta Peace Country currently enjoys a reputation as a source of top-grade honey, wheat, barley, canola, herbs, milk, pork, beef and grass-fed bison. This reputation has been promoted in the "Branding the Peace" campaign. "The Peace Country—it's in everything we grow," is the present slogan of that campaign. "Radioactivity—it's in everything we grow," could become the new theme song if a nuclear reactor is built in this area.

Higher Rates of Cancer: Several well-conducted studies show significantly higher rates of some types of cancer near nuclear power plants. A peer-reviewed study commissioned by the German government showed that children up to age five were more than twice as likely to be diagnosed with leukemia if they lived within five kilometers of a nuclear power plant. There was some increased risk as far away as 50 km. Another study

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showed that men living downwind of the Rocky Flats nuclear plant in Colorado had 40 per cent higher rates of lung cancer, leukemia and lymphoma.

Damage to Recreation: Northwestern Alberta is a beautiful place where people come to camp, boat, fish, hike, hunt and engage in other enjoyable outdoor activities. All of these activities could be compromised by the presence of nearby nuclear reactors. Lac Cardinal, 30 km west of Peace River, is the home of the Alberta Provincial Pond Hockey Championships. It also has a provincial park, church youth camp, museum and rodeo grounds on its shore. Bruce Power is proposing to build its nuclear power plants on the northwest shore of Lac Cardinal, where large cooling towers would emit steam year-round. In other parts of the world which have a cold climate, such cooling towers create a serious fog and icing problem in the winter.

Damage to Bird Habitat: Lac Cardinal has been designated a globally significant wetland for waterfowl and a key staging and molting wetland under the North American Waterfowl Management Plan. Some 3,500 pairs of ducks nest around the lake and tens of thousands of ducks and geese pass through on their fall migration. The mere construction of several large reactors could severely disturb these activities and cause birds to abandon the lake. Operations at the reactor site would create airborne contamination of bird habitat.

Human-Induced Seismic Events: The site chosen for the Bruce Power reactors sits on the Peace River Arch, a major geological structure with a repeated history of internal activity. This arch stretches at least from High Prairie, AB to Fort St. John, B.C. Several seismic events caused by oilfield activity have occurred on this arch during the past few years. The largest was a magnitude 5.1 earthquake centered in the Snipe Lake Oil Field west of Lesser Slave Lake in 1970. A more recent event occurred in the Eagle Oil Field in the Fort St. John area. The Bruce Power site is inside the Peace River Oil Sands Agreement area, in which Shell Canada plans to increase its bitumen production from 12,000 to 100,000 barrels per day. There is a serious risk that oilfield activities in the Peace River area could induce earthquake activity near Lac Cardinal.

Leakage of Stored Wastes: Any site is chosen for nuclear reactors in northwestern Alberta would become a dump for radioactive wastes. At present, most wastes produced by nuclear reactors throughout the world are stored on site. These include so-called "spent" fuel bundles, which are thousands of times more radioactive than the uranium that was used as fuel. These bundles contain such substances as plutonium, which does not exist in nature and is the deadliest substance on earth. Just one kilogram is enough to cause 500,000 cases of cancer if evenly distributed. After being placed in cooling ponds for seven to ten years, these substances are stored in concrete silos which last only about 50 years. To date, no nation on earth has developed long-term storage facilities for spent

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fuel. Meanwhile, reputable scientists tell us that these substances need to be isolated from the environment for one million years.

Transport of Radioactive Substances: The construction of a nuclear power plant in northwestern Alberta would make it necessary for radioactive substances to be transported on highways and/or railways throughout the province. Since Canada does not have facilities for enriching uranium, it is likely that the slightly enriched uranium needed for fuel would be transported throughout the province from the United States. All four of the reactor designs under consideration by Bruce Power for Alberta would also be able to use mixed uranium plutonium oxide (MOX) fuel, made from spent fuel. This extremely toxic fuel could end up on our roads and in our rail cars as it heads north.

Targeting by Terrorists: The threat of being attacked by terrorists may seem remote to many Albertans, but nuclear power plants are actually strategically placed weapons of mass destruction. A conventional explosive hitting a nuclear power plant could cause catastrophic damage over a large area and for many generations. Such a plant in Alberta could well become a target if its main purpose is to supply power to the United States or to extract and process bitumen for the same market. This would most likely be the function of such a plant. A 4,000-megawatt project would meet the household needs of four million people, which is more than the entire population of the province. The Alberta government has already entered into a deal with the US Energy Department to research the use of nuclear power for bitumen production. Proposals have also been made to construct huge new electrical transmission lines that would have the capacity to increase electrical exports to the United States.

Catastrophic Accident Caused by Human Error or Equipment Failure: Nuclear technology is pretty unforgiving. A meltdown and major release of radioactive substances occurred at Three Mile Island in Pennsylvania in 1979 because a worker forgot to reopen a valve after servicing the reactor. In 1992, a tube break at a Pickering reactor in Ontario caused the release of 2,300 trillion becquerels of tritium into Lake Ontario. The fact is that people make mistakes and equipment fails. In most industries, the consequences are confined to the immediate area of the accident over a few months or years. With the nuclear industry, a simple human error or equipment failure can be catastrophic over a large geographic area and for hundreds of generations to come. The Ukrainian embassy has stated that more than 20 years after the nuclear catastrophe at Chernobyl in 1986, 87.85 per cent of the population is ill in the contaminated territory. Is nuclear power really worth the risk? Germany has been able to reduce greenhouse gas emissions while phasing out nuclear power. In less than 10 years, it has installed 20,000 megawatts of wind power. Several other nations have placed a moratorium on nuclear development. We Canadians can do the same. But we need to act now--before we are irreversibly committed to nuclear power.