

Nuclear Energy & the Environment

Highlights

The 30 years of nuclear energy in North America has meant that we have avoided putting hundreds of millions of tonnes of acid gases into our atmosphere.

When we read alarming media accounts of emissions beyond target levels at Ontario nuclear stations, the reference is always to releases beyond the utilities own target levels not the regulatory levels. Ontario's nuclear plants have never released emissions beyond regulatory levels.

In the 25-30 years nuclear energy has been producing electricity throughout the world, it has had an overwhelmingly beneficial effect on our environment.

Alternatives

When the major commitment to nuclear energy was made in North America and Europe in the 1960s and 70s, it was as an alternative to producing electricity with coal and to a lesser extent with oil and natural gas. The latter two have always been considered either too expensive for mass electricity production or they were simply not available to many countries. Coal has been - and continues to be for most of the world - the major alternative to nuclear energy because supplies are generally plentiful and prices are relatively low.

Emissions

Fossil Emissions: The major problem in producing electricity with fossil fuels - coal, oil and natural gas - is that they produce emissions of acid gases - sulphur dioxide and nitric oxide - that are damaging to the natural environment and to human health, particularly to asthma sufferers and those with other respiratory ailments.

Global Warming

A more recent emission problem with fossil fuels is carbon dioxide - a so-called greenhouse gas - which contributes to global warming. Scientists are divided on the extent of the global warming threat but it may well become our most serious environmental challenge and a major determining factor in how we produce large-scale electricity in the future. Already the nations of the world have drafted the Kyoto Agreement which commits them to making substantial reductions in carbon dioxide emissions by 2010.

Against the possible threat of global warming, some authorities around the world now view nuclear energy as the preferred means of clean power for the future.



The Canadian Nuclear Workers' Council is comprised of Locals for the following organizations: *Canadian Union of Public Employees*Communications, Energy & Paper Workers Union*International Association of Firefighters*International Association of Machinists & Aerospace Workers*International Brotherhood of Electrical Workers*Office & Professional Employees International Union*Power Workers' Union*Professional Institute of the Public Service*Public Service Alliance of Canada*United Steelworkers of America*

Environmental Footprint

Because of their immense energy efficiency, nuclear power stations have a much more benign impact on the environment.

Resource Extraction:

500 grams of coal (slightly over 1 lb.) produces 1-1/2 kilowatt hours of electricity, enough to keep a 100-watt light bulb going for 15 hours;

the same quantity of oil produces 2 kilowatt hours of electricity, enough to keep the bulb going for 20 hours;

500 grams of uranium produces 30,000 kilowatt hours of electricity, enough to meet the total electricity needs of the average Toronto household for about one-and-a-half years;

Put another way: the average household's electricity requirements for one-and-a-half years demands the extraction of one pound of uranium from the earth, 7-1/2 tons of oil or 10 tons of coal.

Many hydroelectric developments require the flooding of large areas of land and transmission lines, often running over great distances, between the power station and the population centres where the power is needed. Nuclear power plants eliminate the need for long stretches of transmission line, since they are usually built close to population centres.

A coal-fired station requires a land site that is about three-and-a-half times larger than is needed for a nuclear plant. Although oil- and natural gas-fired stations can be built on compact sites, they require miles of underground pipelines.

Nuclear Energy - The Clean Alternative

Thus nuclear energy means cleaner air, lakes and forests, requires fewer and smaller mines, less transportation and much less overall land use. From an environmental perspective, nuclear energy clearly has a more benign impact on our environment compared to any of the major alternatives.