Power Lines – Myths vs. Facts

FACT SHEET #24

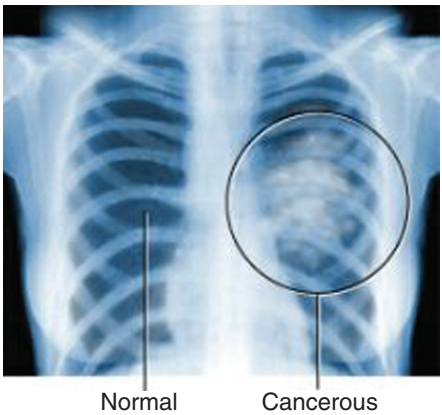
HEALTH IMPACTS OF CORONA EFFECT

The Myth: *The corona effect associated with overhead high voltage power lines has no impact on health.*

The Facts:

- Overhead high voltage power lines ionize the air, emitting trillions of so-called corona ions into the air per second (Abdel-Salam and Abdel-Aziz 1994, Henshaw and Fews 2004). These ions attach to aerosol-sized particles of air pollution including those that are carcinogenic (e.g., diesel exhaust), increasing the electric charge state on these aerosols. The resulting cloud of corona ions and charged aerosols is carried by the wind for significant distances, varying from several hundred metres up to 7 kilometres downwind of power lines (Chalmers 1952, Mühleisen 1953, Henshaw and Fews 2004). When inhaled, electrically charged pollutant aerosol particles deposit in the lungs at a far greater rate than uncharged aerosols (Cohen et al. 1998, Fews et al. 1999, Melandri et al. 1983).

- A risk analysis conducted by Henshaw (2002), suggests that 200 to 400 excess cases of lung cancer mortality and 2,000 to 3,000 excess cases of cardiovascular and respiratory illnesses and aggravated asthma and allergies may occur annually among the 2.7 million people living within 400m of high voltage power lines in the UK. The researcher suggested that these excess cases of illnesses resulting from the corona effect are likely at a level of public health significance.



Normal lung — Cancerous tumour

- Preece et al. (2001) found increased incidence of both lung cancer and mouth cancer in populations living downwind of overhead high voltage power lines in southwest England. For lung cancer, there was a statistically significant higher rate downwind.

- It is known that between 50% and 90% of outdoor pollutant aerosols penetrate indoors in normal ventilation (Hussein et al. 2001). It is therefore safe to assume that near overhead high voltage power lines a significant proportion of pollutant aerosols electrically charged by corona ions will be inhaled indoors (Henshaw and Fews 2004).

- The risks reported above would be particularly significant along Highway 216 adjacent to EPCOR's and AltaLink's preferred route for the Heartland power line where carcinogenic aerosols (diesel exhaust) are in high concentration a very short distance upwind of thousands of homes and many schools.

For information on what you can do go to www.reta.ca

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