

# STIRLING BEFORE PYLONS

- *opposing the Beauly to Denny power line in the Stirling area*



## **Briefing no. 2** **Health Impacts of the proposed power line**

1. There is now overwhelming evidence that electric and magnetic fields (EMFs) such as those found near high voltage power lines are a significant risk factor for a wide range of serious illnesses. More is known about EMF health impacts than is known about passive smoking. (*reference 1*)

2. In June of this year the Draper Report was published. This was a UK government funded study (*reference 2*), conducted by the Childhood Cancer Research Group at the University of Oxford.

3. It studied the data on 29,000 children recorded as being diagnosed with cancer over a 33 year period, and investigated whether proximity of home address at birth to the nearest high voltage power line was associated with an increased risk of childhood cancer.

4. The results showed that children who lived within 200 metres of high voltage power lines were nearly twice as likely to have childhood leukaemia than those who lived more than 600 metres from the lines. A slightly increased risk of leukaemia was observed for those children living between 200 m and 600 m from the lines. No excess risk was found for other childhood cancers.

5. The following conclusions were drawn by the authors:-

- There is an association between childhood leukaemia and proximity of home address at birth to high voltage power lines.
- The most obvious explanation for the association with distance from a line is that it is indeed a consequence of exposure to magnetic fields.
- There is no obvious source of bias in the choice of cases or controls.
- Population mixing (which has been associated with childhood leukaemia) and socioeconomic status were ruled out as possible confounders.
- Previous pooled international studies showed a similar doubling of childhood leukaemia for children living in proximity to power lines.

6. The authors also said the relation may be due to chance or confounding. This is true, in the same way that if someone smoked heavily for 20 years and then developed lung cancer, it may be due to chance and nothing to do with the cigarettes. It is now however widely accepted that living close to high voltage power lines is a significant risk factor for childhood leukaemia on a par with the increased risk of lung cancer associated with passive smoking.

7. More focused studies, in Germany, looking at night time exposure to EMFs, showed a five fold increase in childhood leukaemia.

8. One of my colleagues has spoken to Dr Gerald Draper and he told her that he would not live near high voltage power lines, nor would he have his family doing so.
9. I have spoken to one of the other authors of the study Dr John Swanson who is an employee of National Grid Transco. He was keen to play down the significance of the results but is on record as saying that consideration should be given to the routing of new high voltage power lines near dwellings. He also told me “no one in their right mind would want to live near them.”
10. A range of illnesses in adults has also been attributed to exposure to magnetic fields. At least twelve epidemiological studies show increased risk of depression and suicide from such exposure. Six of these concerned residential exposure to high voltage power lines.
11. A study in Finland looked at depression in 12,000 same sex twins. This found that the risk of severe depression was nearly 5 times greater, for those living within 100 metres of a HV power line, than in those living more than 500 metres away.
12. Professor Denis Henshaw of Bristol University estimates that as many as 9,000 cases of depression and 60 suicides may be attributable to exposure to power line EMFs annually in the UK (*reference 2*).
13. The Californian Health Department EMF report of 2002 produced substantial evidence of increased risk of adult brain cancer, adult leukaemia, miscarriage and a type of motor neurone disease associated with magnetic field exposures (*reference 3*).
14. As Prof Henshaw explained to the Scottish Parliament Petitions Committee (*reference 1*), all of the above wide range of adverse health outcomes could be explained by the disruption of the night time production of the brain hormone melatonin. Melatonin is a powerful antioxidant and free radical scavenger known to act as a natural anti-cancer agent. Reduced levels of melatonin are associated with depression and are also likely to have a bearing on miscarriage. There is now a body of studies showing that long term exposure to very low level magnetic fields are capable of significant disruption of nocturnal melatonin.
15. There is also evidence for a number of other causal mechanisms, through which living in proximity to power lines may lead to ill health. For example, it is known that the electric field of power lines produces so-called corona ions and that these particles attach to pollutants to create cancer inducing agents. These particles can be carried kilometres downwind of high voltage power lines. The proposed new power line passes very close to thousands of people living to the east of Stirling.
16. In the Environmental Statement submitted by Scottish & Southern Energy to Scottish Ministers, the power companies state that their policy in planning the project was to follow government guidelines on exposure to magnetic fields. However, these guidelines are set at a level which is 250 times higher than that at which a doubled risk of childhood leukaemia is internationally acknowledged.
17. It was in recognition of this discrepancy, that in March 2004, the NRPB advised ministers to take the issue of precaution seriously. Accordingly the UK's Public Health Minister, Melanie Johnson MP, has set up the Stakeholder Advisory Group for EMFs (SAGE). The remit of the group is “to explore precautionary approaches

to limit exposure to electric and magnetic fields lower than the levels in the NRPB guidelines.” The issue of siting power lines near houses is one of the issues receiving urgent attention. New guidelines are likely to be produced early in 2006.

18. Prof Henshaw, who is a member of SAGE, in his recent letter to The Scottish Parliament’s Petitions Committee, said:

“I urge the Scottish Parliament to consider immediate strict precaution against the siting of power lines near houses or the converse. I would remind the Parliament that we are well behind some other countries in this regard.”

19. In 1996 Sweden introduced an exposure limit 500 times lower than the UK’s current guidelines, as did three Italian regions in 2000. Switzerland introduced a limit 250 times lower than ours in 1999.

20. At SSE’s recent AGM, Dr Maclean confirmed health had not been a consideration in the routing of the line. Indeed the line is now closer to dwellings to the east of Stirling than in their first proposals, in 2004. 65% of the line may have been revised, but not in the interests of Stirling residents.

21. The power companies appear to have chosen to ignore the now overwhelming evidence of wide ranging health impacts. They have disregarded the very strong cross party support that we have had from our MSPs who supported our submission to the Scottish Parliament’s Petitions Committee and have called for a moratorium on the construction of new high voltage power lines near dwellings. They have ignored the fact that the Norwich Union, among other major insurers, now regard living close to high voltage power lines as a future risk for the insurance industry. They have ignored more than a thousand letters which cited health impacts as a major concern.

22. They have quoted out of date information, quoted very selectively from studies and individuals, and have introduced misleading information. For example on page 7 and on page 10 of Chapter 32 of the Environmental Statement, the power companies assert the UK study published in 1999 found no evidence that exposure to magnetic fields associated with proximity to power lines in the UK increases risks for childhood cancer. This is not true. There was evidence, that was thought not to be statistically significant at the time. Not mentioned by the power companies is that the authors of that study published a correction in the medical journal *The Lancet* in 2000, saying that when their results were included in a pooled analysis, an association was apparent.

23. This study was referred to in the Draper report: “ ... a previous UK study showed a relative risk of 1.42 for acute lymphocytic leukaemia within 400 m of 275 and 400 kV lines.”

24. On the second last page of chapter 32 of SSE’s Environmental Statement, the power companies concede that electronic equipment such as computers are adversely affected by low level magnetic fields. The brain is a particularly sensitive piece of “electronic equipment” that has direct or indirect control of nearly all body systems. It may therefore come as no surprise that “interference” with it by low level magnetic fields may result in adverse health effects.

25. The Precautionary Principle is not even mentioned in the Environmental Statement. This Principle allows big companies to take precautions without

admitting there is a problem with their product and Sir William Stewart, chairman of the Health Protection Agency (HPA), recently said that with regard to new power lines, the principle should be followed.

26. A full and proper risk assessment needs to be done. This would look, for example, at how many children might die, and how many serious adult conditions might result during the life of the Beaulay to Denny power line, and would carry out a full cost benefit analysis for the whole route and compare it to other routes and options.

27. We must also acknowledge the long term consequences of altering the environment of those communities affected by the proposed pylons. Factors which considerably alter our quality of life, and fall outside our ability to control, will invariably impact on our mental wellbeing; this in turn has major social and financial costs.

28. Thousands of lives would be seriously diminished.

**References:**

1. Prof D L Henshaw (11 April 2005): Evidence submitted by letter to the Scottish Parliament's Petitions Committee

2. Draper, G., Vincent, T., Kroll, M. E, Swanson, J. (2005) Childhood cancer in relation to distance from high voltage power lines in England and Wales: a case-control study British Medical Journal (2005) 330: p. 1290-

<http://bmj.com/cgi/content/abstract/330/7503/1290>

3. California Health Department (2002) An evaluation of the possible risks from electric and magnetic fields (EMFs) from power lines, internal wiring, electrical occupations and appliances. California EMF Program, Oakland, CA 94612, USA. <http://www.dhs.ca.gov/ehib/emf/RiskEvaluation/riskeval.html>

*The text of this briefing was first delivered to the Special Meeting of Stirling Council's Environment Committee on 17 October 2005.*

30 October 2005

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