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**Statement to the Petitions Committee**  
December 1, 2009

The petition focuses on potential health hazards associated with long-term exposure to electromagnetic fields (EMFs) from high-voltage transmission lines (HVOTLs). It is of particular concern to me as the proposed high voltage Beaully-Denny line will run through built-up areas of my Mid Scotland and Fife constituency.

I have heard numerous concerns about the detrimental effects of the proposed overhead pylons on landscape, scenery, tourism. Of those, the health concerns are by far the most worrying.

When submitting my previous statement for this petition, I listed in some detail the studies providing evidence for tangible health risks. I am not satisfied with the responses from the Health Protection Agency (HPA) and the Scottish Government.

Both claim to uphold the 1999 European Recommendation guidelines on public exposure to EMF. These are woefully outdated, basically permitting high voltage power lines running directly above homes, schools, nurseries, and giving a benchmark guideline of 100 microtesla. Subsequent studies have shown that 0.4 microtesla already lead to considerable health risks.

In their response of 25 September 2009 to the Petitions Committee, the Health Protection Agency admits that its advice is based on "a comprehensive review of the science published in 2004". It goes on to state that "There have been a number of studies and reviews since the 2004 advice, which we continue to monitor carefully. [...] Our view is that the balance of evidence has not changed in a way that leads us to consider an update to our advice is necessary."

In response, I would like to point to the appended list of 12 peer-reviewed publications since 2002, all evidencing considerable health risks resulting from proximity to powerline EMFs, especially to children and infants. All but one were published in or after 2004, as research in this field has made considerable progress in recent years. Yet the HPA has not engaged with or advised the Westminster and Holyrood Governments on any of them. Instead, the joint Government Response states that "The HPA advises that the EMF association

with childhood leukaemia is weak and unproven". No mention of other associated conditions such as Alzheimer, adult cancers, motor neurone disease, miscarriage, childhood cancers and brain tumours that the studies give evidence for.

The HPA's dismissal of these studies runs counter to the Scottish Government's confidence in their "diligence and expertise, and independence [...] in reviewing and advising on the totality of the available scientific evidence".

Further, the precautionary principle, which the UK signed up to in the Maastricht Treaty, need not even be based on such established evidence. It comes into play when health risks begin to emerge that might, in time, be substantiated by research. As Denis Henshaw, Professor of Physics of Bristol University, points out in his critique of the treatment of scientific evidence on EMFs:

We have long passed the stage where application of the Precautionary Principle and of appropriate legislation against undue exposure is warranted, including a substantial lowering of permitted MF exposure limits, currently 100 microtesla. In the case of high voltage overhead powerlines, these should not be built close to houses or farms.

Other European countries with advanced, electricity-dependent economies like Germany, Holland, Sweden or Switzerland have already taken this step, even though the UK remains intransigent. The need for the Scottish Government to engage critically with such evidence makes me hope that Scotland will take a precautionary approach to ensure that the people along the proposed Beaulieu Denny line – in particular the children, who are most vulnerable – are protected against the health risks posed by the project.

## **Recent Studies Evidencing Health Risks from EMFs:**

*2002:* California Health Department Services Report: associations between EMFs and childhood leukaemia as well as adult cancers, motor neurone disease, miscarriage

*2004:* WHO and National Radiological Protection Board acknowledge association between powerline EMFs and increased risk of childhood leukaemia

*2005:* Melatonin Theory (Henshaw & Reiter): increased cancer rates resulting from suppression of melatonin production, also caused by magnetic fields (plausible biological mechanism)

*June 2005:* Draper Report (funded by UK government): doubled risk of childhood leukaemia for those born within 100m of HVOTLs, 70% increased risk within 200m, statistically insignificant after 600m (based on 30 000 children with cancer)

*June 2007:* Lowenthal Study: five-fold increase in certain leukaemias and lymphomas for those who lived within 300m of HVOTLs aged 0-5

*August 2007:* BioInitiative Working Group: examines long-term biological effects of ELF EMFs exposure on cancers, motor neurone disease, etc; recommends 0.1 microtesla (i.e. building moratorium of at least 200m from existing lines)

*2008: Garcia et al.:*

*2008: Huss et al:* clear/quantifiable association that living within 50m of a HVOTL for 15 years or more doubles Alzheimer risk; further support for Melatonin Theory (based on entire Swiss population)

*2008: Yang et al:* mechanistic connection between powerline EMFs and childhood cancers; genetically susceptible children 4.3 more likely to develop leukaemia if living within 100m of a powerline

*February 2009:* EC's Scientific Committee on Emerging and Newly Identified Health Risks: updated opinion on EMFs which confirms contribution to childhood leukaemia and calls for further investigation in Alzheimer connection

*September 2009:* De-Kun Li in Reproductive toxicology Journal shows clear adverse effect occurring at exposure levels above 0.16 microtesla

*November 2009:* Japanese national Research Institute for Child Health and Development: association between powerline magnetic fields above 0.4 microtesla and increased risk of brain tumour for children equating to an 11-fold risk