Comment on Scottish Parliament petition PE812 at May 2008.

[VR] = Verbatim Report of committee discussion 19-2-08.
[SG] = Stephen Garland's letter 8-5-08 giving a government response.

1. Status and competence of HPA.

In his opening statement [VR], Keith Brown said:
"*We hope to enable Scotland to consider directly and extensively the scientific evidence, through a reasonably competent authority, so that we are not required simply to trust the Health Protection Agency report on the issue.*"

This raises interesting general questions of
(a) the role of statutory advisory bodies,
(b) definitions of competence,
(c) scope of evidence,
(d) trust in public authorities, and
(e) independence of such bodies.

My general comments on those questions are at APPENDIX A below. In short, while the legal and professional competence of HPA may be formally demonstrated, it should not be regarded as an infallible monopoly, and its advice should always be seen in a wider context.

2. Impression and presumption regarding HPA and "no adverse effects".

In discussion [VR] John Farquhar Munro said: **"***The argument is quite topical at the moment because of the proposed Beauly to Denny high-voltage transmission line. I have seen various reports on that issue that suggest that there are no harmful effects*."

This illustrates how an impression can be given by slight variation of words. There is practically no scientific review which concludes, or even suggests, "*that there are no harmful effects*" from EMF from power lines. The reviews recognise the possibility of cause of childhood leukaemia, with a formal international recognition as IARC category 2B, which has not been contested by any public authority, except for the HPA's use of words to suggest no effect.

The latest substantial official review of power frequency EMFs is the WHO EHC238 of 2007. It reports the distinguished epidemiologist and statistician Professor Sander Greenland's 2005 thorough statistical assessment. Based on a set of plausible assumptions, Greenland calculates posterior probabilities of 2–4% that the combination of misclassification, selection bias, confounding and random error (i.e. the net impact) explains the association. That means that the combination of all possible non-causal explanations is given a probability of 2 to 4%, suggesting causation is much more likely than not.

In contrast, the HPA response (Chief Executive Pat Troop's letter 15-10-07) to the SAGE report of 2007 says: "*The evidence to date suggests that in general there are no adverse effects on the health of the population of the UK caused by exposure to ELF EMFs below the guideline levels*". In fact the evidence does not suggest no

effect; there was a finding from a major UKCCS epidemiology study which did not find a statistically significant association with childhood leukaemia, but that finding is not only inconclusive (e.g. because of lack of statistical power at relevant exposures, among other things) but also is at variance with pooled findings of studies across the world, and at variance with the larger Draper study into residential proximity to powerlines in the UK. Such a finding (as that of UKCCS) does not itself suggest no effect; it simply didn't find one. The wider context of other studies does indeed, on balance as reflected in the assessment from Greenland 2005, suggest causation is most likely.

The above cited HPA statement uses the word "suggests" to create an impression that the evidence points positively to there being no adverse effects. Such an impression is then easily picked up and transmitted by others such as John Farquhar Munro.

The sentence is Pat Troop's HPA letter is unhelpful and misleading, and likely to be taken out of context. A simple change of wording to something like "*The evidence to date does not confirm any adverse effects on the health of the population of the UK caused by exposure to ELF EMFs below the guideline levels*" would be more correct.

3. Minutes and decisions.

In his message of 8-5-08 Fergus Cochrane of the Scottish Parliament says: "*The Minutes simply record the decision of the Committee*". The Minutes say "*The Committee agreed to write to the Scottish Government to clarify …*" (a long and bland sentence).

The report [VR] records that the Convenor in concluding said "*We need to send a strong letter to the Government to say that we are keen to explore ways in which minimum recommendations on the precautionary principle could be made*" and "*the fundamental issue is about encouraging a debate around erring on the side of caution*".

The minute would not seem to reflect the strength and purpose of the agreed position as summarised by the Convenor.

4. Government response and evidence of adverse effects.

[SG] attempts to re-state old ground, staring with a valid, if one-sided, description "*However, in this regard, the Radiation Protection Division of the UK Health Protection Agency advises that the epidemiological evidence is not strong enough to justify the firm conclusion that electric and magnetic fields from power lines cause leukaemia in children*".

He later refers to the HPA letter of 15-10-07. saying the HPA "*conclude, as indicated above, that the evidence suggests that such an association is weak and currently unproven*". As "*weak*" is here used without scientific definition, as it was used subjectively by NRPB, this version slips into a slightly less valid and more one-sided version, but still arguable.

In the final concluding paragraph [SG] uses the incorrect and highly one-sided extract from the HPA letter. [SG] says "…*it was stated that the evidence to date suggests that in general there are no adverse effects on the health of the population of the UK caused by exposure to ELF EMFs below the guideline levels*".

Brief and subordinate mention of the association is then dismissed with the concluding sentences "*They then point out that at present there is no plausible biological mechanism to explain this excess if real, or certainty about what aspect of ELF EMF exposure, if any, might be responsible. The Scottish Government has no reason to question the continuing validity of this advice*." Meanwhile, other scientists dispute the HPA claim of "*no plausible mecha*nism", which depends again upon definitions of "*plausible*" and the impressions which politicians might gain from the ordinary language use of the term.

The Scottish Government should have good reason to question the validity of HPA advice, by reference to the range of scientific views and to the linguistic imprecision and impressionistic use of undefined terms in which HPA advice is couched.

5. Government response and competent advice.

[SG] goes on to say, quite reasonably, that Keith Brown's statement (above) "*appears to assert that the HPA is not a 'competent authority*'". [SG] then goes on to assert that it is. Such assertions, without clear definitions of "competent", seem rather pointless. The issue here is not the competence of HPA but government reliance exclusively upon it tantamount to according it the status of an infallible monopoly, as discussed at APPENDIX A below.

It may be convenient, and it may at first sight appear efficient, for government to rely on a single exclusive source which is ultimately appointed by government, but it carries dangers which should be obvious and which might have been learned for example from the BSE-CJD and Iraq WMD affairs, among many others.

MJOC 14-5-08

APPENDIX A. General questions on statutory advisory bodies.

(a) Role.

Decision making bodies need to access summative scientific assessment and to interpret it in a public policy context. Bodies like WHO, HPA and, famously in the BSE-CJD affair, SEAC, have a statutory position in providing advice. Richard Doll used to talk about a Chinese wall between scientific assessment and public policy including precaution. He declined to address precaution through his group AGNIR within NRPB, but he answered questions on a personal basis to say he would prefer to avoid EMF exposures other things being equal.

What we have in HPA is a body which mixes science and policy, at least on EMF. There have been times when NRPB (now absorbed into HPA) has made hasty statements, which other scientists claim are scientifically incorrect, to try to rebut scientific findings or their implications. In this respect HPA has a reputation for campaigning. It might be better if statutory advisory bodies were to avoid such campaigning.

(b) Competence.

A statutory advisory body like HPA has the power to provide advice to government and in that sense it is the legally competent body to do so. It will also be staffed by professionally qualified people, e.g. by recognised degrees and professional body membership, who will therefore have formal professional competence.

Such competence is however no guarantee of being "right" or "infallible", especially as there is often scope for genuine differences of scientifically competent views. On complex and uncertain issues a plurality of valid views is to be expected. There is a danger in assuming that a statutory advisory body must be "right", or even that it must represent the best available advice, though its statutory position should mean that it must be taken into account.

(c) Scope.

The important thing for decision-making bodies is to take the statutory advice in a broad context of other views and opinions. A good statutory advisory body might set out a range of reasonable views and interpretations rather than promote a single view, but even then decision makers should take account of a wider context. While the statutory advice has a special status, it should not have a monopoly.

(d) Trust and (e) Independence.

I have commented more generally on these issues in a note on "probity" at:
http://www.revolt.co.uk/sage/docs/EMF_SAGE_probity6.pdf