

**Response from participant Mike O'Carroll**

**Overview.**

What is the take-home message?

There is a genuine issue of potential health impacts from electric and magnetic fields (EMFs) from the public electricity system, backed by scientific evidence, and warranting precaution. Having said that, there is uncertainty and imprecision which we should learn to respect. We do not have a precise answer to the scale of risk and should recognise a range of possibilities and responses.

... but what about the powerlines corridor option?

If you evaluate the health evidence alone, in a blinkered way, then in cost terms it can reasonably be interpreted either as supporting the corridor option or as opposing it, because of the scale of uncertainty and imprecision. It neither proves nor disproves a case, and neither confirms nor rejects the option. Government should take public concern and political issues into account and should make a decision which SAGE could not make.

Hold on, are you speaking for Revolt here?

No! Revolt would support the corridor option, as it takes a wider view about powerlines. I have been an "Individual" participant in SAGE, bound by an academic ethos and professional codes of practice, and within SAGE focusing only on health and not on visual impacts.

Are you satisfied with the work?

I hoped to be proud of it, but because of the conflicts the result is not of very good quality. Having said that, credit where it's due, hats off to National Grid for taking the initiative and helping to see this through thick and thin! NG should not be blamed for the shortcomings.

**The First Interim Assessment (FIA)**

What do you think of the report itself? Call it the FIA.

It's a small step forward, but a lost opportunity. It made progress in bringing stakeholders together and in addressing precaution for the first time in this area. But it didn't get far - not as far as some other countries.

How far did it get?

It recognised a case to answer. It came up with practical recommendations for domestic wiring. It recognised that evidence-based views existed that the concern is not limited to childhood leukaemia alone.

What opportunities did it miss?

It failed to address the developing science constructively. It failed to give serious consideration to the obvious priority of practical measures for homes under existing powerlines. It failed to balance different perspectives, and finished with polarised views.

### Why did it fail in these respects?

It failed due to process difficulties. Instead of openly acknowledging points of view, and accepting differences while looking for common ground, it bogged down in conflict. There were remarks about “herding cats” and “proximity talks” at times.

### So can stakeholder dialogue ever be useful?

I’m sure it can. There were times when SAGE worked better. But it lost its way after the first year.

### Where did it lose its way?

In trying to evaluate the science. There was vigorous resistance to admitting evidence outside the established “gatekeeper” network. It felt like censorship. First there was resistance to even being allowed to mention the California report or detail from it in the SAGE report. Next there was resistance to considering health impacts other than childhood leukaemia. We called that “CL+”.

### What is CL+ ?

That means childhood leukaemia plus other potential health impacts associated with EMF. A key test candidate is adult leukaemia. Although there is a lot of scientific evidence and significant data, there are bureaucratic blocks to considering it. They stem from the IARC 2B classification.

### Hold on, what’s this IARC class 2B?

It’s bureaucracy, not science. But it gives the political ticket to EMFs for consideration for precaution. The WHO body IARC (International Agency for Research in Cancer) has a system of classifying agents as to carcinogenicity. Briefly, Class 1 is a carcinogen, Class 2A a probable carcinogen, Class 2B a possible carcinogen, Class 3 inadequate evidence for classification, Class 4 not a carcinogen.

### So EMFs are a Class 2B carcinogen?

Yes. The IARC system (with which some of us find fault anyway) is for classifying agents, not for classifying health outcomes. However, the IARC review of EMFs (back in 2002) said it was the evidence from childhood leukaemia which gave reason for Class 2B, whereas evidence for adult leukaemia etc. was considered inadequate to decide.

### Does it matter?

It matters crucially, because childhood leukaemia is so rare the impact evaluation won’t justify any very substantial precautionary measures in cost-benefit terms. Even adult leukaemia is much more prevalent, and several other more common diseases are associated in CL+. Apart from California, the important NIEHS (National Institute of Environmental Health Sciences) in the US rated the evidence for adult leukaemia in supporting a 2B classification.

So SAGE lost its way on this?

Yes, it deteriorated into position taking instead of addressing the evidence. Some establishment representatives dug in to stop CL+ being considered, and some left when it wasn't censored.

Are there issues of conflict still remaining?

Yes, there is still resistance to considering evidence which might disturb the established position. One I raised last year is on the number of childhood leukaemia cases attributable to EMFs in the UK.

What is the issue of attributable cases?

The NRPB (now absorbed in the HPA) has given a high profile to a figure of 2 cases per year. That is based on a very unsound and extreme assumption of a sudden threshold of dose-response effect. The key point is that it assumes zero effect at exposures below 0.4 microTesla, which means it removes 99.5% of exposed people from consideration. Even the WHO precautionary framework says that assumption is not justified. Yet NRPB/HPA and others continue to resist consideration of any alternative. As a mathematician, this is alarming to me, for it is very poor practice.

Would it make any difference?

Very much. Instead of just 2 cases per year attributable to EMFs in the UK, the figure could be around 60, based on more normal assumptions. Mind you, that neither model is well justified by the data, and neither rejected. So we should say there is a possible range of about 2 to 60 attributable cases.

A range of 2 to 60 cases per year, that is very different from the official figure of just 2?

Yes indeed. While it wasn't allowed to be mentioned in the SAGE report (FIA), I am hopeful that reason will prevail and HPA will get the point eventually. But we have had to battle all along.

Where next?

Important further work needs to be pursued. But the process needs changing. As for powerlines, things to do include:

- reviewing costs of undergrounding and why it appears so much cheaper in other countries;
- a phased cost-limited programme of burying existing overhead lines on a worst-case priority basis;
- an inclusive approach to cost-benefit assessment, recognising all potential hazards and their degree of uncertainty, and recognising contingent benefits like reduced visual impact and improved property values.

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