

riceres/steve

From: robin smart [robinSMART@xtra.co.nz]
Sent: Saturday, 13 June 2009 1:11 p.m.
To: tpcallin@riceres.co.nz
Subject: from Robin Smart re response to draft report
Attachments: image001.gif; Pylons response to BOI draft June 2009.doc



Dear Sir,

Please find attached my response to the draft BOI Report as a member of the Medical Committee of New Era Energy.

Yours sincerely

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Board of Inquiry

The North Island Grid Upgrade

Dear Sir,

Further to the draft report of the Board of Inquiry, to which I put a submission, I have the following responses:

1:

It is noted that the Board placed more weight on “Evidence” than “Submissions”. My statement to the Board was categorised as a “Submission”. But I intended for it to be evidence, and fulfilled the time and other criteria, including making a copy available for Transpower, required as far as I am aware. I was expecting to be cross examined. Professor Robert McQueen advised me shortly before that my statement would not be regarded as evidence. I did not receive such advice from BOI staff. By then it seemed too late to do anything about it. At the time I also felt that, as this was a Board of Inquiry and not apparently a Court it would actively seek the truth and that my submission would help it in that regard. But as events have unfolded, and the Board has behaved as a Court, that was clearly mistaken. I should appreciate information on how this occurred. I consider the Board did listen politely to me but not with the intensity that would have occurred if, as I intended, it had been evidence. My colleagues Professor Laura Bennet and Professor Robert McQueen were so regarded.

2:

My submission concerned adverse health effects of low frequency electromagnetic fields associated with HVAC overhead lines. A very strong case was made. This thesis that there are such adverse effects is now accepted by a very large number of people internationally. In many advanced countries the majority hold this view and there have been resulting precautionary steps including regulations taken to reduce risk. Those that I am aware of in the various countries are detailed in the submission. The trend internationally is for tighter regulation. For example the Board heard of recent changes in the Netherlands, made since my submission (clause 869). Leichenstein has also made similar changes. Several French cities including Grenoble are moving in that direction.

3:

The Board found there was no evidence of “cause and effect”. Yet my submission and others outlined basic science that low frequency HVAC fields are foreign to nature; research at cellular level including indications of chromosomal damage; and animal research showing ways the fields damage cells and living organisms. The epidemiological evidence in humans, of which there is a great deal, is now so strong that it is widely accepted internationally. It continues to grow as more research is done.

4:

The evidence has been reviewed by eminent and authoritative groups internationally including the SAGE group, the UK National Radiation Protection Board and Royal Commission on Environmental Protection, the United States National Institute for Environmental Health Sciences and the Environmental Protection Agency of the National Council of Radiation Protection, the California Health Report, IARC/WHO and others as detailed in the submission. The Biomagnetic Report is another eminent group with similar findings. The extent to which they have accepted the evidence is described. All of their positions are far from that adopted by the Board in its statement. In general they advocate caution and that adverse health effects are documented to occur at HVAC magnetic field strengths of 0.2 uT and higher.

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5:

The Board has chosen to accept the ICNIRP guideline of 100 micro tesla as safe for long term exposure for people including children and pregnant women. This despite the Board being informed regarding the severe limitation of this standard including:

- The ICNIRP committee stated the guidelines are “not intended to be a complete system to protect the public.”
- The ICNIRP committee set aside from consideration evidence concerning health risks from low frequency AC magnetic fields not then substantiated by laboratory evidence. This meant that accumulating evidence from epidemiological research was not taken into account setting the limits. Essentially only AC magnetic fields which caused tissue heating, burns, electric shocks, peripheral nerve stimulation including retinal flashing, immediate health effects which could be shown in a laboratory setting were taken into account.

- In my submission I asked where one would have to go to live permanently at 100 uT, concluding that it would be within a meter of a 400 KV line. Even the boundary fence of the Otahuhu substation where I have measured 3.5 uT is not that strong, you would have to be deep in the substation. Older cell phones do have fields of 100 uT at their surface: that would have to be going 24 hours per day up against the head, completely stupid especially for a child or pregnant woman. Even at the door of a microwave oven there is not enough, 30 uT. Who would advise their family including children and pregnant women to live permanently right at the door of the microwave? The New Zealand National Radiation Laboratory? The New Zealand Ministry of Health? Yet extraordinary as it seems this is what is implied by the official limit in New Zealand of 100 uT for homes, schools etc and these organizations have, as said above, to date defended this limit staunchly. There is no study of any population or even a person living at 100 uT permanently. Yet this is the safe level recommended and defended by our regulators.
- Before such a standard is set I submitted that there should be evidence from studied populations that it is safe to live at that level. But there are none for the simple reason no-one has ever done it, and could not. Such a place is impossible as a permanent residence. In my reading the highest average exposure documented for dwellings internationally was 0.67 uT. This was in Auckland near HVAC lines, Professor Ivan Beale's study. Transpower's witness Professor Elwood stated that 99.2% of children live at less than 0.4 uT (clause 115 of his evidence). The research I have studied regards more than 0.4 uT as in the very high exposure group. The vast bulk of populations live at less than 0.1 uT. There is simply no evidence about populations exposed permanently to anything like the levels that are going to occur at the edge of the easement strip for this line.
- When the regulated level is so impractical and not achievable it follows there is effectively no regulation. This may have suited power companies and governments in New Zealand in the past but it is not satisfactory now or in the future.

6:

As detailed in my submission many countries, jurisdictions, have advocated or regulated for lower limits of exposure, especially for homes, schools, hospitals etc involving women of child bearing age and children. Most of these limits are at 0.2 or 0.4 uT. New Zealand and the United Kingdom are regarded as being at the severe end of the spectrum concerning the literal use of the ICNIRP guideline of 100 uT. Many others have in practice discarded it as discussed.

7:

The Board cites the National Policy Statement of the Ministry for the Environment as committing it to the ICNIRP guideline and subsequent New Zealand standard of 100 uT. But:

- In the NPS report the view that adverse health effects occurs at much lower levels is acknowledged. Future caution is advocated. To quote the NPS Board of Inquiry's Report:

1. Page 6, Electric and Magnetic Fields: "We heard a number of very detailed and carefully prepared submissions relating to the perceived detrimental health effects arising from the electric and magnetic fields emitted by high voltage lines. We were impressed by the sincerity of submitters and the care and effort that they had gone to to present their views to the Board. We attach a comment on these concerns as an annexure to this report. We consider that it is important for the Government to keep these issues under constant review. We have concluded, however, that it would not be appropriate for a National Policy Statement to require compliance with other than nationally and internationally approved standards, although it is appropriate to consider precautionary measures as well."

2. And from the Annexure to the Report:

- I. Clause 8: " Submissions from Dr Smart and Dr Bennet for New era Energy, presented extensive statements to show their view of the serious health effects of these magnetic fields even down to exposures of 0.4 micro teslas. Their submissions were impressive."
- II. Clause 11: "The best guidance we have as to the acceptable exposure to magnetic fields from transmission lines has to be the international guidelines endorsed by the WHO this year (2007). We note that circumstances which lead to a long term exposure to fields as strong as 100 micro teslas are hard to imagine and we were given no examples. So a maximum set at that level will have virtually no effect in regulating the juxtaposition of transmission lines and sensitive land uses."

- III. Clause 12: “We conclude that steps should be taken in New Zealand to avoid, remedy or mitigate the agreed association of adverse health effects with strong 50 hertz magnetic fields. To this end ongoing research and appropriate long term planning to separate transmission lines and sensitive land uses should be pursued.”

Any reasonable person studying these NPS statements would conclude that NPS Board considered the 100 uT guideline of the ICNIRP is effectively no regulation at all as contended; and that the NPS Board advocates great caution in this area “to avoid, remedy and mitigate the agreed association of adverse health effects with strong 50 hertz magnetic fields.” I submit for the Board to use the NPS to justify meek acceptance of Transpower funded witness views, reject the evidence concerning adverse health effects at levels of exposure far lower than the ICNIRP 100 uT and authorise the unaltered construction of the line is inaccurate. Further the Board in authorising this line, the first to built in New Zealand for many decades, the first since all of the research linking adverse health effects to these fields became known, without following the great caution expressed in the NPS, as advocated by many including myself, is exposing itself to severe criticism for which it alone is responsible. Considering the actual NPS statements above it is not able to blame the NPS for its position.

- The Board has heard many, many submissions about health concerns and evidence, submissions from various experts in this field although most were Transpower funded. It allowed cross examination and debate between parties. It has gone to some lengthy detail in its report concerning this and its deliberations. It follows that the Board considers itself appropriate and competent in this setting to determine the extent of health risks associated with the new line. Indeed one of the Board Members is an epidemiologist employed by the Ministry of Health. It cannot also claim that its hands are tied by a dictum that it is bound to the NPS, New Zealand Standard and ICNIRP irrespective of evidence, submissions presented to it. If that were the case it would not have been appropriate for the Board to have heard these arguments. Therefore the Board is accountable for its decision on health matters.

8:

The Board has decided after hearing evidence that the likely HVAC magnetic field strength at the edge of the easement strip will be initially 1.1 uT, rising to 5.4 uT in 2030. It has accepted the evidence of Mr Khot, Transpower’s senior development engineer in this matter. But other Transpower witnesses considered there would be much higher levels. Dr Black in his evidence (clause 53) indicates there would be 30 uT at the edge of the easement strip in 2030. Professor Elwood considers there would be up to 10 uT initially, rising to 29 uT in 2042 (clause 39). Transpower in its information about the line before the enquiry stated there would be 10 uT at the edge of the strip. In

my submission I indicated that 3 to 8 uT was expected there based on my reading and observations. All these levels are clearly way above that of 0.1 uT advocated as safe. As stated in my submission the highest levels I encountered in my international literature survey was described in Professor Ivan Beale's study in Auckland where average levels of 0.67 uT were found in homes close to pylons. The levels anticipated by the Board are greater even than these.

9:

I consider Mr Khot has made an error in calculating the expected field strength. He states that the field strength reduces as the cube of the distance. This would be true if the field source was a point. But it is not, it is a cylinder. Therefore the field strength reduces as the square of the distance. In my reading this is the usual assumption made in predicting fields from lines. Further, as stated in my submission, I have carried out readings of field strengths at varying distances from 110 KV and 220 KV lines in the Clevedon Valley. These showed that for the 220 KV line I measured 5 uT was found under the line, declining to 0.1 uT at 100 meters. For the 110 KV line it was 2 uT under the line, declining to 0.1 uT at 75 meters. The rate of decline was consistent with it being determined by the square, not the cube, of the distance.

I think Mr Khot may also have made further errors. The line is in fact a large source with lines spaced 15 meters apart. The centre of the line complex is about 50 meters above ground underneath the line. At the edge of the easement strip the distance from centre of the line complex is about 60 meters, only 20% greater. My information is that at least 12 uT would be expected under the line under normal current loads for such a line. Others as stated above, all Transpower witnesses, have referred to 30 uT. It is simply unbelievable that these levels would decline to 5.4 uT, let alone 1.1 uT, because of an increase in distance from 50 to 60 meters. It is much more likely that levels of 10 to 30 uT will be found as suggested by Transpower's other witnesses. Further my reading is that the size of fields and their strength at distances is much greater for large sources where lines are apart than for small where they are close together. This is the reason fields from underground lines are smaller as stated in my submission. These errors would account for the difference between Mr Khot's evidence, and the views of Dr Black, Professor Elwood, Transpower and myself as stated.

The way to resolve the question would be to measure fields related to existing lines carrying the expected current load. This I have not been able to do but I do quote Deno and Carpenter who found 12 uT beneath a similar 400 KV line, declining to 0.1 uT at 200 meters, the decline matching the square of the distance. This was the basis for my statement. The Board, if it was interested, could arrange for such a study. It may not be as it has, extraordinarily, declared 100 uT safe. But these deliberations will be of relevance in future in view of the evidence indicating that more than 0.1 uT is unsafe.

That the Board accepted Mr Khot's evidence without further inquiry is a further indication that the Board has behaved passively and reached poor conclusions. Some members of the Board had considerable experience in the electricity sector making this even more surprising.

10:

The Board has stated that it regarded "evidence", which is subject to cross examination, as of more weight and value than "submissions". In several places the draft report indicates that the Board has accepted a Transpower witness's opinion because there was no other witness presenting counter evidence. For example Mr Khot regarding field strengths (clause 842), Professor Wood on animal and laboratory data (clause 830). Even though submission content, for example my own, indicated otherwise. This underlines that the Board's method of determining the matters before it has been identical to a Court of Law. It considered the evidence placed before it only.

But I suggest this is not enough in this case. There is an expectation that a Board of Inquiry will seek out the truth. Be inquisitorial. That may involve the Board in seeking alternative opinions from other parties to ensure that its findings are robust. As much is said in clauses 146 and 147 of the Board's draft report. Given the great and long standing controversy in this area of health effects which the Board has been made only too aware of, and that in many cases Transpower's witnesses were unopposed, and the importance of this issue to New Zealanders, the Board should have sort out the views of other experts holding different views to Transpower's witnesses including bringing in international experts to give evidence and be cross examined. To entrust this great responsibility to individuals opposing the line, who simply do not have the financial resources to fund expensive witnesses and protracted legal arguments, is to action a miscarriage of justice. Especially when combined with the Board's method of considering only evidence placed before it. By calling in the project and appointing a Board of Inquiry citizen's rights to the Environment Court were denied, as were their rights to appeal to their local authorities. The broader composition of the Board with only one legally trained member implies that an active wide ranging, not merely a narrow, passive, legalistic approach to seek the truth was required. This has not occurred and therefore the Board's findings are too narrowly based and not robust. Hence they are at odds with cautious scientific opinion.

11:

It is clear the Board has placed great reliance on the evidence of the Transpower witnesses Dr Black, Professor Wood and Professor Elwood. Their views on the safety of the ICNIRP guideline, the unreliability of evidence for adverse health effects have been accepted by the Board. But these witnesses especially Professor Elwood in their evidence described a large number of scientific studies finding significant adverse health effects. I counted 91 in Professor Elwood's statement. Yet by simply saying to the Board he was inclined not to agree with them, that was accepted and has

become the Board's finding. That is a very weak, far from robust process. This evidence needed informed cross examination and opposing expert witness opinion. Before making a determination the Board should have ensured this occurred. Or conducted its own reading and research as others, including myself have done.

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12:

Instead this burden of cross examination has fallen on dedicated amateurs, particularly Professor McQueen. I should have liked to have assisted Professor McQueen but it proved impossible for me because of uncertain timing of witnesses, especially Professor Elwood, and my own professional commitments as a surgeon. Professor Elwood's time before the Board clashed with the Annual General Meeting of the New Zealand Medical Association of which I am Treasurer. Board and Council member and must attend. Many other dedicated amateurs who have professional commitments would have found themselves in the same position. Transpower with its large resources was able to fund expert witnesses and legal counsel for the Inquiry. The Board, in behaving as a Court, clinched the imbalance.

13:

A great deal of time was spent considering the evidence about Childhood Leukaemia. This is a rare condition although devastating as acknowledged by the Board. The rarity was referred to by the Board in its conclusion there were no adverse health effects. But much more common conditions have been widely accepted as caused by these fields by eminent peer groups such as the California Health Report including miscarriage, adult brain cancer, suicide and adult leukaemia. Others about which there is concern but which are controversial include depression, headache, breast cancer, malignant melanoma, lymphomas, alzheimers and others. The Board dismissed these more common risks despite being made aware of evidence about them.

14:

The Board has accepted the easement width proposal of Transpower. This means homes will be able to be built close to the line, and existing homes will have the line imposed upon them. Because of the widespread acknowledgement of health effects families with adequate financial resources will not live, or have to live, in such places. But the poor will, as is the case in Auckland and other areas now. Every time someone living in these homes becomes ill, be it from miscarriage, brain cancer, leukaemia, depression and suicide about which there is strong evidence, or breast cancer, melanoma, alzheimers, lymphoma, constant headache, other conditions, about which there is weaker evidence, they and their families, friends will have great concern it is because of living within these strong fields. And, as related, they will have a strong case for their anxiety. The position of elected Governments and regulators will become untenable if they try to defend the undefendable

100 uT ICNIRP guideline as the basis for their standard as it has internationally. This is another aspect which the Board, in authorising the first new line in New Zealand for decades, should heed.

15:

The Board has decided there are no health risks in its draft decision. I request that this be reconsidered for the final decision, and that the Board agree with Professor Laura Bennet, Professor Robert McQueen, myself, and many others both in New Zealand and internationally concerning this aspect, and make an appropriate recommendation concerning the easement strip width and extent of undergrounding for this line. It may be that the financial viability of the line would be altered by these considerations and that other alternatives such as HVDC, without such health effects and much cheaper than underground HVAC, may have to be reconsidered. That would be preferable to proceeding with another dangerous cheap line in New Zealand.

Non – Health Aspects

16:

Concerning areas other than health it is observed that the Board has found in Transpower's favour on every count. Despite the many hundreds of affected people appearing before it and making their cases. This great number was referred to by the Hon. R Storey, the Board rejecting it from consideration. But surely Hon. Storey has a point in that an opinion held by such a large number carries weight.

17:

Many made submissions that Transpower, and the process including the Electricity Commission, had not considered sufficiently the advantages of alternatives. Particularly 220 KV only with its substantial environmental advantages related to smaller pylons. The nonsense of building a structure not required for more than 20 years, perhaps never, was put to the Board by many. Others tried to put cases for HVDC and more underground. To no avail. The Board meekly and superficially accepted Transpower's assurance it had considered and rejected these without further consideration of the alternatives themselves on its part. It found that Transpower's consideration of alternatives was adequate but not perfect. Many other submitters clearly disagreed. Cost and reliability were cited by Transpower as problems with alternatives especially HVAC underground. But the very considerable cost of altered land use from HVAC overhead for the life of this line was not investigated by the Board. Nor was the true cost and reliability of

underground. The opportunity for an HVDC link from the Cook Strait cables has been lost. Generation in Auckland was ruled out of consideration. In the end the Board, like Transpower, failed to properly consider alternatives and simply adhered to the bare legal requirement by accepting Transpower's assurance, despite evidence to the contrary.

18:

The Manukau City Council made arguments requesting the Board to consider the Auckland environment as it would probably be several decades away in view of the projected 50 year or more life of this line. Particularly with regard to urbanisation. This was rejected on a narrow legal basis citing Court of Appeal judgements. Only the present environment and any changes by already granted resource consents was allowed to be considered. This defies common sense. How ridiculous that an overhead HVAC line with a life of 50 years at least should be built in areas virtually certain to be urbanised because of a narrow legal view. I would question whether the Court of Appeal cases cited are true parallels given the size, longevity and situation of this line. Another example of the Board failing to meet the requirement to take a broad view in the long term interest of New Zealand.

19:

The Board heard many express dismay at the impact of the pylons on beautiful places due to their great size. Most would tower above the Auckland Harbour Bridge or North Head. The Board often agreed that there would be an adverse effect on the landscape. But always allowed the line and pylons to proceed. The Board saw pictures by Transpower witnesses and others of the pylons and lines in various places. But did the Board go and look at, be near such a pylon and line? This would have involved travel to Australia or further. I and many others have seen these monsters and it is only by doing that that their ugly dominance is appreciated. An active Board of Inquiry would have done that to fulfil its responsibility to our country. This passive excessively legalistic Board has failed to meet the challenge placed before it, and, by acquiescing to Transpower in all matters, has caused New Zealanders to lose faith in their country.

Yours sincerely

R.F.Smart