

MINORITY REPORT BY LABOR SENATORS

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RECOMMENDATIONS OF LABOR SENATORS

Research:

Labor Senators conclude there is justification to some of the criticisms of past studies of the physical and health effects of EMR. Accordingly, Labor Senators support ongoing research into potential adverse effects of EMR. (Chapter 4, p 209)

Labor Senators note that in the light of the limited resources available for research into health issues where causes are identifiable, and given the existing inconclusiveness of the many completed studies into EMR, the funding available for EMR research does not appear to be inadequate. (Chapter 3, p 196)

Labor Senators conclude that there does not seem to be an identifiable problem with expenditure of funding by NHMRC on the evidence. (Chapter 3, p 195)

Standards Setting:

Labor believes that Standards Australia should be the primary body for setting standards. However, in this case, Labor Senators conclude that Standards Australia failed to achieve an outcome. This is because the structure of Standards Australia in this instance allowed a small proportion of participants to exercise a veto on any outcome. Accordingly, this ongoing failure warranted the transfer of responsibility for setting a standard to an alternate body such as the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). (Chapter 5, p 217)

Labor Senators find no substantial criticism of the transfer of the responsibility for setting a new Australian standard for electromagnetic emissions to ARPANSA. (Chapter 6, p 226)

Labor Senators support a standard setting process consistent with existing science on the health effects of EMR, and ongoing research into potential adverse health effects arising from non-thermal levels of exposure. (Chapter 4, p 206)

Labor Senators support the inclusion of precautionary measures in the new standard, and consider the approach taken in the draft standard to be sensible. (Chapter 6, p 226)

Given that the draft RF standard produced by ARPANSA incorporates a precautionary approach, and recognises the need for ongoing research, Labor Senators conclude that there is no justification for this Committee to recommend alternative courses of action. (Chapter 4, p 207)

Labor Senators conclude that there is currently no scientific evidence to support the proposition that maintaining lower permissible levels of RF radiation in the

standards will decrease the potential for health effects, and that therefore there is no compelling scientific argument for such action at this time. However, Labor Senators support ongoing research in this area. (Chapter 5, pp 219-220)

Other:

Labor Senators endorse the ACA's role in monitoring the dissemination of information to the public, and seek that the ACA table 12 monthly statements in the parliament which detail industry adherence to this voluntary undertaking and public or consumer complaints or comments about this process. (Chapter 4, p 208)

Although acknowledging the problem of inclusion of frequencies employed by the metals industry in the draft RF standard, Labor Senators consider that the issue would more appropriately be raised in the standard setting process being undertaken by ARPANSA. (Chapter 5, p 220)

1. INTRODUCTION

1.1 The Senate has referred the following matters to the Environment, Communications, Information Technology and the Arts References Committee for inquiry and report:

- a) an examination of the allocation of funding from the Commonwealth's \$4.5 million fund for electromagnetic radiation research and public information;
- b) a review of current Australian and international research into electromagnetic radiation and its effects as it applies to telecommunications equipment, including but not limited to, mobile telephones;
- c) an examination of the current Australian Interim Standard [AS/NZS 2772.1 (Int): 1998], as it applies to telecommunications;
- d) an examination of efforts to set an Australian Standard dealing with electro-magnetic emissions;
- e) an examination of the merits of the transfer of the responsibility for setting a new Australian standard for electro-magnetic emissions to the Australian Radiation Protection and Nuclear Safety Agency.

1.2 The issue of the effects of exposure to electromagnetic radiation, particularly from mobile phones, has received considerable media attention in recent times. This is partly due to the pervasiveness of mobile phone usage in modern society. The evidence to this Inquiry has been extensive. Yet it is impossible to establish any consensus on major issues by experts in the field.

1.3 The evidence has derived from a range of sources – medical and scientific researchers, academics, medical practitioners, epidemiologists, the mobile phone industry, government bodies and research organisations and EMR organisations. This breadth of sources has given rise to an even broader range of views and opinions.

1.4 Those who gave evidence to the Committee have justified their arguments on various grounds. Often assertions were justified by reference to studies that have been criticised in peer-reviews, that have not been replicated, and that are of dubious applicability to conclusions about health effects of RF radiation and mobile phones.

1.5 This makes the Committee's task particularly challenging, as the evidence presented is clearly inconclusive. There are however a number of conclusions and recommendations that can be reached on the balance of the evidence. This report presents those conclusions reached by Labor Senators.

2. CRITIQUE OF CHAIR'S REPORT

2.1 Labor Senators note that the Chair's report to this Inquiry is not supported by any other voting member of the Committee. Its conclusions and recommendations should be read in that context.

2.2 Labor Senators find some of the observations, interpretations of the evidence, conclusions, and recommendations contained in the Chair's report untenable. As a consequence, Labor Senators determined it necessary to table this Minority Report, which expounds our conclusions and recommendations based on the evidence before the Committee. The conclusions and recommendations of Labor Senators are substantially different from those reached by the Chair of the Committee.

2.3 Labor Senators find the Chair's report untenable because certain recommendations, conclusions and evidence in the body of the report are erroneous and specious considering the actual evidence. The basis of this judgment by Labor Senators is that in the Chair's report:

- a) Some recommendations and evidence are outside the terms of reference of the Inquiry, whilst other evidence that was also outside the terms of reference is not in the report.
- b) Some recommendations and conclusions are nonsensical and unfounded in the light of the evidence, some contradict the evidence presented to the Committee and some even contradict the Chair's own conclusions on the evidence.
- c) Certain evidence has been given undue weight notwithstanding dubious credibility of witnesses or weight of evidence to the contrary.
- d) Evidence has been distorted or taken out of context.
- e) Other recommendations do not seem to have been clearly thought out, as they lack detail or are imprecise.

2.4 Each of these criticisms is discussed in detail at Appendix 1. The pervasive flaws, errors and misinterpretations in the Chair's report necessitate this Minority Report which represents Labor Senators conclusions based on evidence to the Inquiry.

3. TERM OF REFERENCE (A) - ELECTROMAGNETIC RADIATION RESEARCH FUNDING ALLOCATION

3.1 In October 1996 the Australian Government announced funding of \$4.5 million over 5 years for the Radiofrequency (RF) Electromagnetic Energy (EME) Program, for research and public information into health issues associated with mobile phones, mobile phone towers and other communications devices and equipment.¹

3.2 The National Health and Medical Research Council (NHMRC) advised the Committee that the Government Program has three components:²

- research on possible health effects of RF EME exposure, focussing on those issues of particular relevance to the Australian environment to complement overseas research;
- public dissemination of up-to-date information about RF EME public health issues; and
- Australia's contribution to and participation in the WHO EMF Research Coordination Project, assessing the health and environmental effects of EME Exposure.

3.3 Of the \$4.5 million allocated for the Program, an amount of \$3.15 million was allocated for research managed by the NHMRC, with the remainder identified for public information and the WHO collaboration. The research component was later increased to \$3.4 million.³

3.4 An examination of the allocation of funding from the \$4.5 million fund requires analysis of the three criticisms that have been raised in this regard during the Inquiry. Those three criticisms relate to the NHMRC's:

1. decision-making processes for the distribution of research funding;
2. the timeframe for distribution and use of funds;
3. allegedly inappropriate expenditure of funds.

1. Decision-making processes for the distribution of research funding

3.5 First, criticism has been directed at the NHMRC's decision-making processes for the distribution of research funding. In particular, accusations of bias or improper

1 NHMRC, Submission 69, pp 3-4.

2 NHMRC, Submission 69, p 4.

3 Ibid.

process by those involved in decision-making⁴ and of a failure to give reasons why proposals were refused⁵ have been made.

3.6 NHMRC detailed its evaluation processes that have been followed for both the first and second rounds of grants funding EMR research and indicated no allegations of bias have been formally raised with the Committee or the Board.⁶

3.7 The decision-making processes demonstrate awareness of and attention to issues of bias by the NHMRC. It is clear that there is a limited number of experts in this field in Australia and that there will inevitably be some perception of bias on a panel like this as a number of experts will have attained such status through some involvement in the industry or other roles which give rise to that perception.⁷

3.8 The funding that NHMRC distributes is derived from a government levy on the spectrum used. It comes to NHMRC totally unencumbered and is independent and at arms-length from industry.⁸ This fact suggests, and evidence to the Committee clearly demonstrated, that the NHMRC pays considerable attention to avoiding bias and ensuring the independence of research and of the allocation of funding for such research.

3.9 CSIRO complained that research funding is generally inadequate and considered that it is not NHMRC's fault that worthy projects were rejected. Rather, the ad hoc distribution of funding was a consequence of inadequate funding for research generally. CSIRO added that there was no improper behaviour by individuals involved in NHMRC in the gaining of grants or in the carrying out of their research. The process simply gave rise to a public perception of bias.⁹

2. Timeframe for distribution and use of funds

3.10 The second criticism was that the distribution/use of funds has been excessively slow and it was alleged that only a small proportion of the fund has been

4 CSIRO, *Proof Committee Hansard*, 16/11/00, pp 226-227, 232; Dr Hocking, *Proof Committee Hansard*, 22/9/00, p 93.

5 Dr Hocking, *Proof Committee Hansard*, 22/9/00, pp 93, 94.

6 *Proof Committee Hansard*, 8/9/00, pp 44ff; p 51.

7 *Proof Committee Hansard*, 8/9/00, p 45. Similar allegations of perceived bias have been raised in the context of standards setting by ARPANSA. ARPANSA responded to objections at involvement of persons from academia, telecommunications companies and industry generally by stating that "given the level and spread of expertise on these issues in this country, if you want to draw up a standard you are inevitably going to have to involve people who have some industry background; otherwise the breadth of knowledge is simply not enough to write the standard" per Dr Loy, *Proof Committee Hansard*, 2/3/01, p 344. This pragmatic argument applies equally in the context of NHMRC's decision making – the breadth of knowledge and expertise necessitates involvement of persons who may have had involvement with industry.

8 NHMRC, *Proof Committee Hansard*, 2/3/01, p 395.

9 *Proof Committee Hansard*, 16/11/00, p 232.

used. The NHMRC's response to this allegation was that the process of allocating funding was time-consuming and the stages of decision-making were dependent on completion of pilot projects and the like. In order to ensure impartiality the NHMRC's first step was to undertake external community consultation. Those consultative processes and the process of analysis for expressions of interest were extensive and thorough, and consequently time consuming.¹⁰

3.11 The complexity of the studies, the NHMRC's assessment processes, and the fact that many are, of their very nature, long-term studies, have meant that expenditure of the funds could not be properly achieved in a short timeframe.¹¹

3. Inappropriate expenditure of funds

3.12 Thirdly, it was alleged in a submission to the Inquiry from the Electromagnetic Radiation Alliance of Australia (EMRAA) that "a good proportion" of the funds allocated in 1996 (that is, the \$4.5 million fund) had been inappropriately spent on a misdirected PR campaign and that "vast amounts of money have been spent to convince the public that there are no adverse health effects from EMR".¹²

3.13 In response to a question during public hearings, EMRAA advised that the Department's figure for the cost of the public information campaign of \$12,483 was the sum to which it was referring when it used the expressions "vast amounts of money" and a "good proportion" of the funds.¹³

Labor Senators conclude that there does not seem to be an identifiable problem with expenditure of funding by NHMRC on this evidence.

Adequacy of research funding

3.14 A number of submissions to this Inquiry called for increased funding for independent research into the effects of electromagnetic radiation.¹⁴ Evidence from the NHMRC showed that Australia's contribution to EME research is comparable to or exceeds that of the WHO, the United States and the United Kingdom on a per capita basis.¹⁵

10 *Proof Committee Hansard*, 2/3/01, pp 399-400.

11 *Proof Committee Hansard*, 2/3/01, p 397.

12 EMRAA, Submission 80, p 4.

13 EMRAA, *Proof Committee Hansard*, p 254.

14 Mr Maisch, *Proof Committee Hansard*, 22/9/00, p 76; Dr Hocking, *Proof Committee Hansard*, 22/9/00, p 93; Mr Dalton, *Proof Committee Hansard*, 22/9/00, p 153.

15 NHMRC, *Proof Committee Hansard*, 2/3/01, p 395.

3.15 Furthermore, compared with funding grants in other areas of research, EME funding grants are larger.¹⁶

3.16 Although arguments for greater research funding are understandable and research funding in many areas is often criticised as inadequate, it seems that Australia's contribution to funding is sensible and adequate when compared to those of other developed nations.

3.17 The failure of studies to prove any conclusive evidence of health effects from powerlines lead to a 1997 editorial in the prestigious *New England Journal of Medicine* to declare it time to stop "wasting" resources on research that produced inconclusive inconsistent studies and "considerable paranoia but little insight and no prevention".¹⁷

Labor Senators note that in light of the limited resources available for research into health issues where causes are identifiable, and given the existing inconclusiveness of the many completed studies into EMR, the funding available for EMR research does not appear to be inadequate.

16 NHMRC, *Proof Committee Hansard*, 2/3/01, p 394.

17 Quoted in Melissa Sweet, "The topic of cancer", *The Bulletin*, 27/3/01, p 39.

4. TERM OF REFERENCE (B) - REVIEW OF RESEARCH

4.1 This term of reference requires a review of current Australian and international research into electromagnetic radiation and its effects as it applies to telecommunications equipment, including but not limited to, mobile telephones.

Expert evidence: contradictory

4.2 The effect of EMR as it applies to telecommunications equipment is an area of contention for scientists, researchers and medical experts. Evidence from experts in this field has been inconclusive, contradictory, inconsistent and hotly contested by all parties.

4.3 There are two ways in which health could be affected as a result of exposure to RF radiation. Health consequences could result from thermal (heating) effects and from possible non-thermal (or athermal) effects of RF radiation.

4.4 There is an extensive body of research, conducted over several decades, that relates to the effects of electromagnetic radiation. The studies relate to various frequencies, some are laboratory tests in vitro, others in vivo, there are experiments with a variety of animal species, and epidemiological studies.

Scientific value of studies

4.5 The value of these studies and their applicability to the present issue of health effects of telecommunications equipment has been the subject of considerable comment throughout this Inquiry.¹ Similarly the weight that can be accorded evidence arising from a study that has not been replicated or confirmed has been discussed in detail particularly since shortcomings in methodologies and a lack of agreement between results have been identified.

4.6 Evidence from Dr David Black noted that it is never possible to scientifically prove that something cannot happen. In evidence to the Committee Dr Black stated:

...if people say the question is to prove that something does not happen then you are trying to use science to prove a negative, and you really can never do that. So the only way you can ever continue to look at the safety of this approach is to continually set up hypotheses of things that might happen and then test to see if they do.²

4.7 Dr Repacholi, WHO, expressed the same view that it is necessary:

1 For example, applicability of ELF studies to EMR issues was dismissed by Dr Moulder, *Proof Committee Hansard*, 2/3/01, pp 317-318. Whilst Dr Moulder also dismissed any analogy between electromagnetic interference issues and biological effects (*Proof Committee Hansard*, 2/3/01, p 318); Dr Cherry considered that opinion 'completely wrong': *Proof Committee Hansard*, 2/3/01, p 332.

2 Dr Black, *Proof Committee Hansard*, 8/9/00, p 65.

...to look at the strength of the evidence, because you can never prove that something does not happen...³

4.8 On the issue of the strength of the evidence, Dr Moulder informed the Committee that:

There are a lot of studies in this area which are very poor science...⁴

4.9 Dr Moulder's submission evaluated the weight of evidence and concluded that the evidence for a causal association between exposure to RF radiation and cancer is weak to non-existent.⁵ Other witnesses suggest the contrary.⁶ Evaluation of the weight of evidence requires an assessment of the credibility of the various studies.

4.10 Dr Repacholi gave evidence of the importance of verifying the validity of results of a study through confirmation or replication.⁷ Dr Moulder agreed that:

'confirmation' ... is critically essential to all areas of science. ... that you cannot confirm and replicate [a result] implies that there is something at least slightly wrong with the original – not necessarily totally wrong but something did not happen the way the authors think it happened. At the first stage of an attempt to confirm, where you have somebody reporting something and somebody else saying they cannot confirm it, you really cannot necessarily believe either study.⁸

4.11 Professor Elwood and the MMF also stressed that replication of studies is critical to their probative value, and to ensure that results are not due to chance variation.⁹

4.12 The disagreement between scientists on the conclusions they have reached on existing evidence seems to come down to their assessment of existing studies and the weight they accord those various studies. Where one scientist or researcher has considered a particular study to be probative of a certain effect, another has doubted that it has any probative effect at all due to methodological deficiencies or a lack or failure of replication or confirmation.

4.13 It is not within this Committee's competence to analyse the methodologies of relevant studies to ascertain their probative value. Instead, we rely on the conclusions that experts have reached, and these vary considerably from one to the next.

3 *Proof Committee Hansard*, 31/8/00, p 4.

4 Submission 60, p 34.

5 Submission 60, pp 33-34.

6 For example Dr Cherry, *Proof Committee Hansard*, 2/3/01, p 330.

7 *Proof Committee Hansard*, 31/8/00, p 11.

8 *Proof Committee Hansard*, 2/3/01, p 317.

9 Prof Elwood, *Proof Committee Hansard*, 22/9/00, pp 110-1; MMF, Submission 75, p 6.

4.14 Complicating any determination of the weight of evidence are questions that have been raised about the reliability of research in this field. These allegations further obfuscate any possible consensus among experts. Mr Stewart Fist advised the Committee that he believes there has been a systematic corruption of the science relevant to the cellphone industry, particularly in the United States.¹⁰ However, Mr Fist stated that the science in Australia, England and Sweden is particularly good.¹¹ Yet even Australian experts are unable to reach a consensus on the health effects of EMR.

4.15 Mr Fist conceded that “It is not that there is proof that cellphones are dangerous...”.¹² And that is the crux of the dilemma – in the absence of proof that there are any harmful health effects from levels within the guidelines, what action should be taken?

4.16 Mr Fist concluded that:

I do not think the ICNIRP standard is any better or any worse than any other standard. The only thing it lacks is honesty: it needs a precautionary statement. It needs to say: these standards are set in the absence of evidence, not in the presence of evidence, and therefore you are wise to limit your use of these things, especially if you are a young person.¹³

4.17 Labor Senators agree a precautionary approach is preferred.¹⁴

Witness conclusions – EMR effects

4.18 The scientific evidence upon which witnesses have formed their various conclusions, has led them to conclusions that can basically, for present purposes, be categorised as follows:

- that EMR, at non-thermal or athermal levels, has a proven biological effect and that this gives rise to a possibility/likelihood of adverse health consequences;¹⁵

10 *Proof Committee Hansard*, 16/11/00, p 189.

11 *Proof Committee Hansard*, 16/11/00, p 189.

12 *Proof Committee Hansard*, 16/11/00, p 193.

13 *Proof Committee Hansard*, 16/11/00, p 193.

14 Although the Committee has received no evidence of the extent of use of mobile phones by children, the billing practices of the major service providers suggests extensive use of mobile phones by children would lead to exorbitant accounts. In addition, many parents are happy to provide mobile phones for their children as a safety tool with restricted access or use arrangements. As always, it is a balancing mechanism.

15 Dr Cherry, *Proof Committee Hansard*, 2/3/01, p 334; Dr French, *Proof Committee Hansard*, 16/11/00, p 269 (although there is no definitive evidence for a link between EMR and cancer: p 262); Mr Maisch, *Proof Committee Hansard*, 22/9/00, pp 75, 77.

- that EMR has no proven adverse effect on health, and biological effects of EMR at non-thermal or athermal levels (proven or not) are not likely to have adverse health effects as none have been demonstrated.¹⁶ There is no proven link between RF and cancer.¹⁷

4.19 There are no proven adverse health effects resulting from any biological effects of EMR at non-thermal or athermal levels. The different conclusions lead to divergent recommendations as to the appropriate courses of action in respect of human exposure to EMR.

International research reviews

4.20 There have been two significant international reviews by expert panels of the literature and research on electromagnetic radiation in recent times which are valuable to this Committee's deliberations. These reviews took into account considerable volumes of evidence in reaching their conclusions.

4.21 The first review was released in March 1999 and was prepared at the request of the Royal Society of Canada.¹⁸ The Independent Expert Group on Mobile Phones established by British Government and chaired by Professor Sir William Stewart released the second of these reports in May last year ("the Stewart Report").¹⁹

4.22 The expert panel report published by the Royal Society of Canada²⁰ states that:

Overall, the results of the currently available clinical and epidemiological studies are inconsistent and provide no clear pattern of adverse health effects related to RF exposure. ... At the same time, this evidence is inadequate to permit a comprehensive assessment of potential health risks.²¹

4.23 The Stewart Report reached the conclusion that:

16 Dr Holt, *Proof Committee Hansard*, 8/9/00, p 86; Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 28; ARPANSA, *Proof Committee Hansard*, 2/3/01, pp 343-4; ACA, Submission 100, p 2; Royal Society of Canada Report "A Review of the Potential Health Risks of Radiofrequency Fields from Wireless Telecommunication Devices", March 1999, Expert Panel Report prepared at the request of the Royal Society of Canada for Health Canada. Available at <http://www.rsc.ca/english/RFreport.pdf>; "Mobile Phones and Health", May 2000, Independent Expert Group on Mobile Phones. Available at <http://www.iegmp.org.uk/IEGMPtxt.htm>

17 Prof Elwood, *Proof Committee Hansard*, 22/9/00, p 143; Dr Black, *Proof Committee Hansard*, 8/9/00, p 56; Dr French, *Proof Committee Hansard*, 16/11/00, p 262.

18 "A Review of the Potential Health Risks of Radiofrequency Fields from Wireless Telecommunication Devices", March 1999, Expert Panel Report prepared at the request of the Royal Society of Canada for Health Canada. Available at <http://www.rsc.ca/english/RFreport.pdf>

19 "Mobile Phones and Health", May 2000, Independent Expert Group on Mobile Phones. Available at <http://www.iegmp.org.uk/IEGMPtxt.htm>

20 "A Review of the Potential Health Risks of Radiofrequency Fields from Wireless Telecommunication Devices", March 1999, Expert Panel Report prepared at the request of the Royal Society of Canada for Health Canada. Available at <http://www.rsc.ca/english/RFreport.pdf>

21 Ibid, at p 10 (Executive summary), quoted by NHMRC, Submission 69, p 19.

The balance of scientific evidence to date suggests that exposures to RF radiation below ... ICNIRP guidelines do not cause adverse health effects to the general population.²²

4.24 Both of these prominent reviews reached conclusions, on the balance of evidence, that RF radiation does not have an adverse health effect.

4.25 Both reviews did, however, express some reservations, given gaps in knowledge about the conclusiveness of existing evidence.

4.26 The Royal Society of Canada Report²³ stated that:

Non-thermal exposure levels can result in biological effects but there is insufficient information to conclude that these are adverse health effects.

4.27 The Stewart Report reached a similar conclusion, but went much further:

We conclude therefore that it is not possible at present to say that exposure to RF radiation, even at levels below national guidelines, is totally without potential adverse health effects, and that the gaps in knowledge are sufficient to justify a precautionary approach.²⁴

4.28 Precautionary approaches to health issues have become particularly popular in Britain in recent times. A recent article in *The Sydney Morning Herald* stated:

[Professor Bruce Armstrong, Research Director of The Cancer Council of NSW] ... senses a shift in the national psyche in Britain, where environmental and agricultural health scares have been coming thick and fast in recent years. If people live in a place “where it’s suddenly not safe to eat meat” – amid mad-cow and foot-and-mouth epidemics – it was harder to accept risk with equanimity.²⁵

4.29 In this context, it is easy to see why the British emphasis on precautionary measures is particularly evident in their conclusions on the effects of mobile phones on human health.

International research

4.30 There are three epidemiological studies that have been published very recently which are of particular relevance to the subject of this Inquiry. These studies are particularly noteworthy, as their results were not released prior to the completion of

22 “Mobile Phones and Health”, May 2000, Independent Expert Group on Mobile Phones, Chapter 1, p 3. Available at <http://www.iegmp.org.uk/IEGMPTxt.htm>

23 Available at <http://www.rsc.ca/english/RFreport.pdf>

24 “Mobile Phones and Health”, May 2000, Independent Expert Group on Mobile Phones, Chapter 1, p 3. Available at <http://www.iegmp.org.uk/IEGMPTxt.htm>

25 Julie Robotham, “Something in the air”, *The Sydney Morning Herald*, 10/3/01.

the two major expert reviews of international research²⁶ discussed above. Furthermore these studies were more extensive and conclusive than previous epidemiological studies. Dr Moulder sent the Committee an additional submission summarising these studies, and the Mobile Manufacturers Forum discussed their results in evidence to the Committee on the final day of public hearings.²⁷ Those studies are:

- A large cohort mortality study among employees of Motorola, a manufacturer of wireless communication products (“Motorola study”).²⁸
- A study done as part of a larger study by the National Cancer Institute (part of the National Institute of Health in the US) compared mobile phone use of patients with brain tumours and controls who were patients in the same hospitals with non-malignant conditions (“US Hospital study”).²⁹
- A retrospective cohort study of cancer incidence in Denmark of all users of cellular telephones during the period from 1982 through 1995 (more than 420,000) (“Danish study”).³⁰

Motorola study

4.31 The first is the occupational study of nearly 200,000 employees of the Motorola company. The study classified employees according to their level of RF exposure through their job and divided them into four groups. The study examines all major causes of mortality with brain cancers, lymphomas, and leukaemias as *a priori* outcomes of interest.³¹ The analysis takes account of gender differences, age differences and length of follow-up.

4.32 The study concluded that “Although this study is limited by the use of a qualitative exposure matrix and the relatively young age of the cohort, our *findings do not support an association between occupational RF exposure and brain cancers or lymphoma/leukaemia*”.³² [Italics added]

26 Royal Society of Canada Report and IEGMP (Stewart) Report.

27 Dr Moulder, *Proof Committee Hansard*, 2/3/01, p 315; MMF, *Proof Committee Hansard*, 2/3/01, p 359.

28 Morgan et al, “Radiofrequency Exposure and Mortality from Cancer of the Brain and Lymphatic/Hematopoietic Systems”, *Epidemiology*, March 2000, Vol.11, No.2, p 118.

29 Inskip et al, “Cellular-Telephone use and Brain Tumors”, *New England Journal of Medicine*, 11 January 2001, Vol. 344, No. 2. Available at <http://www.nejm.com/content/2001/0344/0002/0079.asp>

30 Referred to by Dr Swicord, MMF, *Proof Committee Hansard*, 2/3/01, p 359; Johansen et al, “Cellular Telephones and Cancer – A Nationwide Cohort Study in Denmark”, *Journal of the National Cancer Institute*, Vol.93, No.3, 7/2/01.

31 Morgan et al, “Radiofrequency Exposure and Mortality from Cancer of the Brain and Lymphatic/Hematopoietic Systems”, *Epidemiology*, March 2000, Vol.11, No.2, p 118.

32 Morgan et al, “Radiofrequency Exposure and Mortality from Cancer of the Brain and Lymphatic/Hematopoietic Systems”, *Epidemiology*, March 2000, Vol.11, No.2, p 118.

4.33 Overall, Professor Elwood concluded that “none of [the] results [in the Motorola study] are statistically significant”.³³

4.34 The magnitude of this study, the fact that the results allow for a 10-year latency, and the methodology used make it an important study, according to Professor Elwood.³⁴

US Hospital study

4.35 This study examined the use of cellular telephones in a case-control study of intracranial tumours of the nervous system conducted between 1994 and 1998. The study included 782 patients with brain tumours in hospitals in Phoenix, Arizona, Boston and Pittsburgh, and 799 controls who were patients admitted to the same hospitals as the patients with brain tumours for a variety of non-malignant conditions.³⁵

4.36 The study concluded that:

These data do not support the hypothesis that the recent use of hand-held cellular telephones causes brain tumours, but they are not sufficient to evaluate the risks among long-term, heavy users and for potentially long induction periods.³⁶

Danish nationwide study

4.37 This nationwide study in Denmark examined cancer incidence of all users of mobile phones from 1982 through 1995. Subscriber lists from the two Danish operating companies identified 420,095 cellular telephone users. Cancer incidence was determined by linkage with the Danish Cancer Registry.³⁷

4.38 The study concluded that:

The results of this investigation, the first nationwide cancer incidence study of cellular phone users, do not support the hypothesis of an association

33 *Proof Committee Hansard*, 22/9/00, p 140.

34 *Proof Committee Hansard*, 22/9/00, p 140.

35 Inskip et al, “Cellular-Telephone use and Brain Tumors”, *New England Journal of Medicine*, 11 January 2001, Vol. 344, No. 2. Available at <http://www.nejm.com/content/2001/0344/0002/0079.asp>

36 Inskip et al, “Cellular-Telephone use and Brain Tumors”, *New England Journal of Medicine*, 11 January 2001, Vol. 344, No. 2, 79-86.

37 Johansen et al, “Cellular Telephones and Cancer – A Nationwide Cohort Study in Denmark”, *Journal of the National Cancer Institute*, Vol.93, No.3, 7/2/01 at p.203.

between use of these telephones and tumours of the brain or salivary gland, leukemia, or other cancers.³⁸

4.39 Another notable epidemiological study was done in Sweden where the mobile phone usage patterns of over 217 patients with brain tumours were compared with those of a control group of 439 people of the same age and gender who were healthy. The main result of that study was that for practical purposes the use of cellphones was identical, for practical purposes. The results showed that “there is no relationship overall between use of cellphones and brain tumours in this study”.³⁹

Conclusions of international research

4.40 These major, recent and extensive epidemiological studies have been unable to find an association between cancers and mobile telephone usage. This is the most reliable and conclusive evidence of the effect of mobile phones on human health. Animal studies and biological studies have dubious relevance for human health.

4.41 Dr Swicord, Research Director for the MMF, reached the conclusion that “our findings do not support an association between occupational RF exposure and brain cancer, lymphoma and leukaemia”, based on the Motorola, Danish and US hospital studies.⁴⁰

Conclusions in evidence to the Committee

4.42 Several submissions to the Committee identified studies that have concluded that EMR has a biological effect at non-thermal or athermal levels and a number of medical researchers gave evidence of recent findings of non-thermal and athermal effects.⁴¹ It is important to note that interpreting those studies cannot give rise to any conclusion that EMR has any effect on health. The link between a biological effect and health effect has not been established.

4.43 Other witnesses emphasised the importance of looking at the effects of EMR in a whole human being rather than at results in vitro.⁴² This is particularly so when we are contemplating standards for the protection of human health.

38 Johansen et al, “Cellular Telephones and Cancer – A Nationwide Cohort Study in Denmark”, *Journal of the National Cancer Institute*, Vol.93, No.3, 7/2/01.

39 *Proof Committee Hansard*, 22/9/00, p 142.

40 *Proof Committee Hansard*, 2/3/01, p 360.

41 Dr David Black, *Proof Committee Hansard*, 8/9/00, p 56; Dr French (heat shock response), *Proof Committee Hansard*, 16/11/00, p 263; Dr Moulder, *Proof Committee Hansard*, 2/3/01, p 323; Dr Cherry, *Proof Committee Hansard*, 2/3/01, pp 330-1: (melatonin reduction, altering calcium ion signalling, damage to genes, chromosomes, and DNA – indicates genotoxicity).

42 Dr Holt, *Proof Committee Hansard*, 8/9/00, p 86; Dr Black, *Proof Committee Hansard*, 8/9/00, p 59.

4.44 CSIRO indicated that the existence of health effects from exposure to low levels of RF radiation remains unconfirmed and contentious.⁴³ Certainly a few cell or animal studies have reported results suggesting some biological effects, but these have yet to be replicated (that is, the results have not been duplicated by subsequent studies which are part of the process of substantiating scientific research).⁴⁴

4.45 Different experts have reached a variety of different, often contradictory, conclusions, on a number of issues relevant to this Inquiry.

4.46 Dr Holt concluded that EMR increases the speed of growth of myeloid leukaemia or any other cancer, and will reduce the survival rate, even though it cannot be proven that mobile phone use will contribute to the creation of cancer.⁴⁵

4.47 The draft RF standard produced by ARPANSA does in fact incorporate a precautionary approach. On that basis, Labor Senators conclude that there is no justification for this Committee to recommend alternative courses of action.

4.48 Due to the conflicting opinions of experts and apparent inconclusiveness of scientific evidence on this issue, it is clear that, at this point in time, there is a great deal of uncertainty whether electromagnetic radiation has health effects at non-thermal levels. In the absence of conclusive evidence showing health effects at levels below those prescribed in extant standards, it would be inconsistent with existing knowledge and science to require lower levels of EMR than those contained in standards.

4.49 As Professor Elwood stated in evidence to the Committee:⁴⁶

The summary is basically that, overall — and I think the overall assessment is the important thing — I do not see any consistency in relationships between cancer and radio frequencies. There are quite a lot of studies, so there are some positive results which require further assessment. The studies are limited by lack of information on exposure, lack of control for other factors and, in some studies, biases in the data.

My impression is that the better studies ... are the ones that show no association. Very often it is the weaker studies, with much smaller numbers and much weaker study designs, that tend to show unusual results which therefore need testing. So, overall, my conclusion is that there is no consistent evidence relating radiofrequency exposures and cancer in humans, in terms of current research.

43 *Proof Committee Hansard*, 16/11/00, p 222.

44 ARPANSA Fact Sheet, "Government action on electromagnetic energy public health issues", available at http://www.health.gov.au/arpansa/pubs/eme_comitee/fact1.pdf

45 *Proof Committee Hansard*, 8/9/00, pp 85-89.

46 Professor Elwood, *Proof Committee Hansard*, 22/9/00, p 123.

4.50 Professor Elwood summarises the present research in a way that accords with the perception of Labor Senators, from the evidence presented to the Committee.

4.51 A majority of expert witnesses, and government agencies, reached the conclusion that, based on existing research, there is no proof that exposure to RF radiation below ICNIRP guidelines causes adverse health effects.⁴⁷

For this reason, Labor Senators support a standard setting process consistent with existing science on the health effects of EMR, and ongoing research into potential adverse health effects arising from non-thermal levels of exposure.

Recommendations based on conclusions

4.52 On the basis of the various conclusions that have been drawn from the existing research, witnesses before the Committee advocated a number of recommended courses of action.

4.53 CSIRO recommended a precautionary approach to the use of mobile phones, and stated that prudence demands that exposure levels to RF radiation be kept as low as possible, within what is technically, socially and economically feasible.⁴⁸

4.54 Dr Repacholi of the World Health Organisation stated that Governments need to address public concerns through a policy of precautionary measures including increasing research, encouraging manufacturers to minimise exposure levels, communicate risks, targeting audiences with honest and accurate information, involving the public in decision making, and siting facilities to minimise public exposure and concerns.⁴⁹

4.55 Considerable support for continued investigation and research into non-thermal effects of RF was conveyed to the Committee by the industry, experts in medical and scientific fields and consumer organisations.

4.56 The real issue in this current debate is the precise degree of precaution we should apply to standards. It is clear that the current precautionary approach in ARPANSA's draft standard is sufficient given the state of the most recent evidence made available to the Committee.

47 Dr Holt, *Proof Committee Hansard*, 8/9/00, p 86; Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 28; Dr Black, *Proof Committee Hansard*, 8/9/00, p 60; Dr Moulder, *Proof Committee Hansard*, 2/3/01, p 326; ARPANSA, *Proof Committee Hansard*, 2/3/01, pp 343-4; ACA, Submission 100, p 2; AMTA, Submission 19, p 33; MMF, *Proof Committee Hansard*, 2/3/01, p 361; Royal Society of Canada Report "A Review of the Potential Health Risks of Radiofrequency Fields from Wireless Telecommunication Devices", March 1999, Expert Panel Report prepared at the request of the Royal Society of Canada for Health Canada. Available at <http://www.rsc.ca/english/RFreport.pdf>; "Mobile Phones and Health", May 2000, Independent Expert Group on Mobile Phones. Available at <http://www.iegmp.org.uk/IEGMPtxt.htm>

48 *Proof Committee Hansard*, 16/11/00, p 222.

49 *Proof Committee Hansard*, 31/8/00, p 13.

Given that the draft RF standard produced by ARPANSA incorporates a precautionary approach, and recognises the need for ongoing research, Labor Senators conclude that there is no justification for this Committee to recommend alternative courses of action.

Recommendations of consumer and community groups

4.57 The primary theme in submissions from consumer and community groups was the need for more publicly available research and information at point of sale for consumers, including some kind of EME labelling on mobile phones.⁵⁰

4.58 The Consumers' Telecommunications Network, a national coalition of consumer and community groups, stated that its primary concern is public disclosure of potential health and safety issues, since if the public is informed, they make their own choices about the *potential* health risks.⁵¹

4.59 The Australian Communications Authority (ACA) announced, in August last year, an agreement it had made with industry to make information about the maximum emission levels of mobile phones more readily available by voluntarily providing emission levels as part of the mobile phone packaging.⁵²

4.60 At that time, the Australian Mobile Telecommunications Association (AMTA) indicated that it would "consult with its overseas counterparts to devise a consistent method for reporting [maximum SAR measurements of mobile phones] ... to reduce any potential for confusion." AMTA also said it was "awaiting the development of an international standard for measuring SARs, which was expected within the next few months".⁵³

4.61 The European Committee for Electrotechnical Standardization (CENELEC) has recently finalised the technical standards for the measurement of SAR from mobile phone handsets.⁵⁴ Manufacturers are taking steps to acquire and commission the new test equipment and procedures specified in the standard. Apparently, there are presently only very few suppliers of some of the necessary test equipment upon which all manufacturers are relying.

4.62 The provision of EMR information with new models of mobile phones will commence when the necessary test equipment is available, in line with the product

50 CTN, *Proof Committee Hansard*, 16/11/00, p 213.

51 CTN, *Proof Committee Hansard*, 16/11/00, p 216.

52 ACA Press Release "Information on mobile phone energy emissions to be made available" 2/8/00, available at <http://www.aca.gov.au/media/2000/41-00.htm>

53 AMTA Press Release "Mobile phone industry to provide information on phone emission levels", 2/8/00, available at http://www.amta.org.au/files/media/mr00_7.htm

54 Although it will not be published until ratified by the CENELEC Technical Board.

launch plans of manufacturers. It is anticipated that this will commence in the second half of this year for new models of mobile phones as they enter the market.

4.63 When implemented this will, it seems, address those concerns raised by consumer groups on the issue of informing the public of emission levels. The ACA undertook to monitor this system to ensure that public information needs are adequately met.⁵⁵ This is particularly important in view of the voluntary nature of adherence to the scheme.

4.64 In any event, the value of this consumer measure, whether fulfilled or otherwise, is questionable. There are several reasons for this:⁵⁶

- The maximum SAR measurement does not reflect actual exposure levels because mobile phones automatically adjust to the minimum power level required to connect and maintain a quality call, and this depends on factors such as the distance to the nearest base station.
- There is no credible evidence of health effects from phones that meet EMR exposure standards and no evidence supporting the proposition that a phone with a lower maximum SAR reduces the potential for health effects.⁵⁷

Labor Senators endorse the ACA's role in monitoring the dissemination of information to the public, and seek that the ACA table 12 monthly statements in the parliament which detail industry adherence to this voluntary undertaking and public or consumer complaints or comments about this process.

4.65 Another community organisation, the Electromagnetic Radiation Alliance of Australia (EMRAA), advised that although “we cannot prove that low levels of electromagnetic radiation cause health problems” there are “good reasons ... [why] many studies that show that they do not”.⁵⁸

4.66 EMRAA suggested that studies fail to find effect for a number of reasons:⁵⁹

- difficulties in measuring EMR;
- different genetic susceptibilities;
- long latency periods for some relevant diseases;
- industry funding affecting outcomes.

55 Footnote 52.

56 Footnote 53.

57 See Recommendation - Chapter 5, p.5. For example, MMF, *Proof Committee Hansard*, 2/3/01, p 362.

58 *Proof Committee Hansard*, 16/11/00, p 241.

59 EMRAA, *Proof Committee Hansard*, 16/11/00, p 240.

Labor Senators conclude there is justification to some of these criticisms of past studies of the physical and health effects of EMR. Accordingly, Labor Senators support ongoing research into potential adverse effects of EMR.

4.67 EMRAA concluded that “new standards are urgently needed”,⁶⁰ and that there is “already enough evidence that low levels of electromagnetic radiation are dangerous to warrant immediate precautions”.⁶¹

However, Labor Senators also conclude below that “there is currently no scientific evidence to support the proposition that maintaining lower permissible levels of RF radiation in the standards will decrease the potential for health effects, and that therefore there is no compelling scientific argument for such action at this time. However, Labor Senators support ongoing research in this area.”⁶²

Powerlines and leukaemia

4.68 The conflicting nature of evidence that has been presented to the Committee is exemplified by research into a link between powerlines and leukaemia. Various conclusions have been reached on the same evidence and media reports on relevant studies have been far more sensational than the actual findings.⁶³

4.69 This is not to deny that there have been potential concerns arising from the results of some studies. Dr Repacholi indicated that the low frequency area is of particular concern for the World Health Organisation at the moment as a result of two studies:

One is that there are some studies suggesting that workers seem to have lower heart rates. Some studies suggest increases in leukemia and brain tumours by working with power frequency fields. But the most worrying to me is the residential studies where children living near powerlines seem to have a higher incidence of leukemia. That is what we are concentrating our research on now.⁶⁴

4.70 However the subsequent results of a British study, chaired by Sir Richard Doll, into a possible link between extremely low frequency (ELF) electromagnetic fields (from powerlines) and cancer, were not as sensational as media reports suggested.⁶⁵

60 EMRAA, *Proof Committee Hansard*, 16/11/00, p 240.

61 EMRAA, *Proof Committee Hansard*, 16/11/00, p 241.

62 Recommendation – Chapter 5, p 5.

63 Melissa Sweet, “The topic of cancer”, *The Bulletin*, 27/3/01, p 39.

64 Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 18.

65 For example articles pre-empting the release of the report: Brendan O’Malley, “Boost for powerline protesters”, *The Courier Mail*, 7/3/01; John Kerin, “Wooldridge warning on powerlines”, *The Australian*,

The study analysed the results of a number of substantial large epidemiological studies carried out in Scandinavia, America, Canada and Britain.

4.71 In a recent interview Professor Doll responded to the question “Can we extrapolate that there is indeed a link between powerlines and cancer?” by stating that:⁶⁶

No we can't and that is one of the things that we say very clearly that you cannot conclude that this radiation, and I must emphasise that its not just powerlines, that's one source of it. .. But we're quite clear that you cannot say that it definitely causes cancer.

The experimental studies and studies done in laboratories on cells, provide absolutely no reason to think that there might be any hazards.

4.72 Notably, some Australian press reports had given the impression that the study had reached the opposite conclusion.⁶⁷ This typifies the sensationalist press responses in this subject area when the evidence is inconclusive.

4.73 The express findings of the study included the statement that:

*Laboratory experiments have provided no good evidence that extremely low frequency electromagnetic fields are capable of producing cancer, nor do human epidemiological studies suggest that they cause cancer in general. There is, however, some epidemiological evidence that prolonged exposure to higher levels of power frequency magnetic fields is associated with a small risk of leukaemia in children. In practice, such levels of exposure are seldom encountered by the general public in the UK. In the absence of clear evidence of a carcinogenic effect in adults, or of a plausible explanation from experiments on animals or isolated cells, the epidemiological evidence is currently not strong enough to justify a firm conclusion that such fields cause leukaemia in children.*⁶⁸ [Italics added]

4.74 In short, it is clear from the above quote that epidemiological evidence does not support a link between cancer and ELF EMF. Labor Senators advocate a precautionary approach where evidence is inconclusive.

7/3/01; Joseph Kerr, Deborah Jopson, “Cancer and powerlines: painful questions return with the grief”, *The Sydney Morning Herald*, 6/3/01; Michelle Paine, “Transend looks closely at powerline leukaemia link – Calm urged over pylons”, *The Mercury*, 7/3/01.

66 Interview by Angela Catterns on ABC 702 2BL, 7/3/01.

67 For example articles pre-empting the release of the report: Brendan O'Malley, “Boost for powerline protesters”, *The Courier Mail*, 7/3/01; John Kerin, “Wooldridge warning on powerlines”, *The Australian*, 7/3/01; Joseph Kerr, Deborah Jopson, “Cancer and powerlines: painful questions return with the grief”, *The Sydney Morning Herald*, 6/3/01; Michelle Paine, “Transend looks closely at powerline leukaemia link – Calm urged over pylons”, *The Mercury*, 7/3/01.

68 “ELF Electromagnetic Fields and the Risk of Cancer”, Vol 12, No.1, 2001, National Radiological Protection Board (UK) Advisory Group On Non-Ionising Radiation, Chapter 7, para (15). Available at <http://www.nrp.org.uk/Abcd12-1.htm>

4.75 A recent article in *The Economist* published the conclusion that the Doll study found that “exposure to EMF is linked to a modestly elevated risk of a very rare disease in a small section of the population” and “even if EMF is associated with childhood leukaemia, that does not mean that it causes it”.⁶⁹

4.76 In response to the Doll report, an article in *The Bulletin* recently observed that:

more than 20 years of research into electromagnetic fields and cancer has yielded few definitive answers. So much so that a 1997 editorial in the prestigious *New England Journal of Medicine* went to the extreme of declaring it time to stop “wasting” resources on research that produced inconclusive inconsistent studies and “considerable paranoia but little insight and no prevention.”⁷⁰

4.77 Professor Bruce Armstrong, the research director of The Cancer Council of NSW, was recently quoted as calculating the risk as equating to a single case of leukaemia related to powerlines every six years in Australia. He commented that “It seems to be very minimal in terms of a probability...”⁷¹

4.78 The recent article in *The Bulletin* quoted Sydney scientist Bernard Stewart as having stated “People should be aware that the hazard exists but rank it with lightning strikes, shark attacks and other very low-profile hazards”.⁷²

4.79 Those comments put the potential risk into perspective, and illustrate the extent of exaggeration of the risk, which has fuelled public fears.

4.80 The relevance of the evidence relating to ELF EMF studies has been doubted. In response to a question asked by Senator Allison⁷³ during public hearings, ARPANSA advised the Committee that in general ELF studies were not investigated by the RF Working Group in its deliberations on the RF draft standard because the standard covers the RF spectrum – that is frequencies in the range 3kHz – 300kHz. The ELF range is 50 to 60Hz.

4.81 The applicability of ELF studies to effects of RF radiation were dismissed by Dr Moulder who, in response to a question from Senator Bishop about the extent to which the results from ELF studies could be applied to RF, stated:

The first and simplest answer is that they cannot be applied at all .. [b]ecause the biophysics of interaction is completely different ... in general, if you want to know about the health effects or the biological effects of

69 Dr Anthony Swerdlow, Epidemiologist, Institute for Cancer Research London in “Current concerns - Power Lines and Cancer”, *The Economist*, 10/3/01, p 89.

70 Melissa Sweet, “The topic of cancer”, *The Bulletin*, 27/3/01, p 39.

71 Julie Robotham, “Something in the air”, *The Sydney Morning Herald*, 10/3/01.

72 Melissa Sweet, “The topic of cancer”, *The Bulletin*, 27/3/01, p 39.

73 *Proof Committee Hansard*, 2/3/01, p 348.

something, you try to use basically the same agent you are interested in. So in terms of radiofrequency radiation where we are particularly, I think, interested in telecommunications, the best data is the data done at telecommunications frequencies.⁷⁴

4.82 The conclusions reached in respect of ELF EMF mirror those that have been reached regarding the effects of EMR from mobile phones. The evidence is inconclusive, and if any effect is suggested, its incidence verges on statistical insignificance and in any case there is inadequate evidence to demonstrate a causal relationship.

Planning issues – telecommunications and electricity infrastructure

4.83 Term of reference (b) confines this inquiry to examining research relating to “telecommunications equipment, including but not limited to, mobile telephones”. As such, even though a significant number of submissions addressed planning issues for telecommunications and electricity infrastructure, those are outside the scope of this inquiry.

4.84 The concerns raised in submissions on planning issues related to the inadequacy of the requirements for community consultation and involvement in issues of location of mobile telephone towers. Local Governments and individuals within local communities have expressed dissatisfaction with the planning framework under the *Telecommunications Act 1997*. Those concerns relate to a lack of appropriate local community consultation – particularly where infrastructure is situated near schools, hospitals and residential areas, a lack of sharing or joint location of facilities and a lack of national regulatory oversight.

4.85 The ALP has indicated its support and the urgent need for significant improvement in the local and national planning framework for the construction of mobile telecommunications towers.⁷⁵ Changes that must now be urgently adopted by the Industry and Government include:⁷⁶

- a) Requiring carriers to advise and consult with the relevant Local Authority over the proposed construction of a low impact facility;
- b) Requiring carriers to share or co-locate proposed or existing facilities on a case by case basis;
- c) Providing for the relevant Local Authority or Authorities to seek a determination from the ACA about whether a proposed facility is a high or low impact facility;

74 *Proof Committee Hansard*, 2/3/00, p 318.

75 Press Release, Stephen Smith, Shadow Minister for Communications, 24/7/00.

76 *Ibid.*

- d) Providing for the relevant Local Authority or Authorities to seek a determination from the ACA about whether the proliferation or density of multiple existing or proposed low impact facilities can be deemed to be a high impact facility; and
- e) Providing for the ACA to determine or arbitrate disputes arising out of the planning framework.

4.86 Labor's consultation process would ensure that carriers provide local communities with sufficient evidence concerning the levels of EMR from their facilities.

4.87 Labor Senators recognise the necessity for better balancing industry development which is crucial to maintain national state of the art communications facilities and services, and the concerns of local communities across the nation. The Government, on the other hand, has so far failed to take action to address these issues.

4.88 The Australian Communications Industry Forum (ACIF) has been developing a Code of Practice which, it is anticipated, will seek to address the concerns raised during this Inquiry such as consultation and sensitive use issues. It remains to be seen whether this industry initiative will resolve those issues.

4.89 Although not within the terms of reference of this Inquiry, Labor Senators recognise the legitimate concerns raised with the Committee on the issue of the planning framework for communications infrastructure and strongly encourage Government action to solve the problems.

4.90 A number of submissions were received by the Inquiry in which concerns at the health effects of powerlines were raised. The present inquiry is, however, limited to the "effects of electromagnetic radiation as it applies to telecommunications equipment, including but not limited to, mobile telephones". Clearly this kind of infrastructure falls outside the scope of this term of reference.

5. TERMS OF REFERENCE (C) & (D) - THE CURRENT AUSTRALIAN INTERIM STANDARD [AS/NZS 2772.1 (INT): [1998], AS IT APPLIES TO TELECOMMUNICATIONS & EFFORTS TO SET AN AUSTRALIAN STANDARD DEALING WITH EME

History of setting standards relating to EMR in Australia

5.1 The Australian Communications Authority (ACA) introduced a standard in February 1999 setting public exposure limits to radiofrequency EMR. The ACA has powers to make standards under the *Radiocommunications Act 1992*. Pursuant to the Act, the ACA's standards can cover protection of the health and safety of people who operate, work on, use, or are reasonably likely to be affected by the operation of radiocommunications transmitters or receivers.¹

5.2 The ACA standard based public exposure limits on those of the lapsed technical standard developed by Standards Australia (AS /NZS 2772.1 (Int): 1998). Standards Australia formulated the interim standard but failed to achieve the requisite consensus to make the standard permanent,² and the interim standard lapsed leaving no standard.³

5.3 The attempt by Standards Australia to set a standard relating to RF exposure limits provides an important background to the present Australian standard setting efforts. Standards Australia advised the Committee, in considerable detail, of the procedures it undertook in attempts to formulate a standard for human exposure to EMR.

5.4 Standards Australia gave evidence that it is an independent organisation which prepares standards through an internationally recognised process of transparency and consensus. Australian standards are voluntary documents, unless referenced in legislation and Standards Australia is a facilitator and does not play an active part in the decisions of the committee formed to formulate standards, does not have a vote on any standards and does not chair meetings.⁴

5.5 The submission to this Inquiry from Standards Australia detailed the process for creating a standard as follows:⁵

1 *Proof Committee Hansard*, 16/11/00, p 298.

2 Standards Australia, *Proof Committee Hansard*, 16/11/00, pp 282-283; ACA, *Proof Committee Hansard*, 16/11/00, p 306.

3 Standards Australia, *Proof Committee Hansard*, 16/11/00, p 295.

4 *Proof Committee Hansard*, 16/11/00, p 281.

5 Submission 133.

- To formulate standards, Standards Australia convenes a balanced technical committee of relevant stakeholders which operates under internationally accepted principles of transparency and consensus.
- Since 1984, Standards Australia has had a technical standards committee (TE/7) considering standards for human exposure to EMR. The committee has been a joint Australian/New Zealand committee since 1992.
- Standards Australia originally prepared AS 2772.1 at the request of the communications industry to cover both occupational and non-occupational exposure to non-ionising radiations.
- As community interests came to the fore, problems arriving at a consensus manifested with Committee TE/7, that prepared AS 2772.1 and was responsible for its maintenance and update.
- Between August 1998 and April 1999, TE/7 reviewed the need for a revised standard to replace AS/NZS 2772.1 (Int):1998. A review to ensure there was a balance of relevant interests was undertaken and four new members were added – two from Consumers Federation of Australia, one from AMTA and one from Cable and Wireless Optus.
- To enable a standard to be published there are three hurdles that need to be cleared:
 1. 67 per cent of the people who are eligible to vote need to actually vote on the document.
 2. Of those who have voted, 80 per cent of them need to be positive.
 3. Even with that 80 per cent, no major sector interest is to maintain a negative vote.
- The major sector interests on the TE/7 Committee are:
 - User and purchasing bodies;
 - Manufacturers-suppliers;
 - Independent professional and technical bodies;
 - Consumers;
 - Regulatory or controlling bodies;
 - Research and testing organisations; and
 - Unions.
- In the standards setting process for EMR, the TE/7 Committee did not achieve the second step of achieving an 80 per cent positive vote.

5.6 Standards Australia indicated that it is very rare for it not to achieve consensus. It publishes 40 to 45 standards a month, on average, and Mr Blair observed that in the last six or seven years “I have not known us not to achieve consensus in publishing standards. So this is a very rare event”.⁶

5.7 It was suggested that the reason for the committee’s inability to achieve consensus was that:

... in this case we have got a combination of technical issues and I suppose community issues, and it was trying to marry those together to get an outcome, and unfortunately it was not successful.⁷

5.8 There was broad representation of stakeholder interests on the TE/7 Committee and the Committee failed to publish a standard. Standards Australia indicated that, in the case of it revisiting this issue, it would seek to reduce the size of the Committee.⁸

5.9 Clearly the failure of the Standards Australia standard setting processes was due to the inability of the structure of the system to deal with the contentious issues. A major point of debate was the strength of the proposed ‘precautionary approach’ in the draft standard.⁹

5.10 AS2272.1 (Int): 1998, was extended beyond its original expiry of 5 March 1999 until 30 April 1999 by a vote of TE/7 to give time to resolve the issue. Continuing failed attempts to resolve the impasse were fruitless and the Interim Standard was withdrawn from 1 May 1999.¹⁰

5.11 The ACA has indicated its intention to continue to mandate the standards it has made until the new technical standard being developed by ARPANSA is finalised.¹¹

Labor believes that Standards Australia should be the primary body for setting standards. However, in this case, Labor Senators conclude that Standards Australia failed to achieve an outcome. This is because the structure of Standards Australia in this instance allowed a small proportion of participants to exercise a veto on any outcome. Accordingly, this ongoing failure warranted the transfer of responsibility for setting a standard to an alternate body such as ARPANSA.

6 *Proof Committee Hansard*, 16/11/00, p 282.

7 Mr Blair, Standards Australia, *Proof Committee Hansard*, 16/11/00, p 287.

8 *Proof Committee Hansard*, 16/11/00, p 289.

9 Standards Australia, Submission 133, p 2.

10 Standards Australia, Submission 133, pp 3-4.

11 *Proof Committee Hansard*, 16/11/00, p 298.

The appropriate standard

5.12 The current interim standard has been criticised for not being science-based, but supported because it permits lower levels of emissions than the ICNIRP guidelines. The International Commission on Non-Ionising Radiation Protection (ICNIRP), a non-government organisation (NGO), published guidelines in 1998 that cover exposure to RF radiation.

5.13 The ICNIRP guidelines are the current international standards based on studies that ascertained thresholds at which actual effects could be repeatedly seen, and then a margin for safety and uncertainty (of 50) was applied to those thresholds.¹² The ICNIRP guidelines are based on the need to avoid known adverse health effects.

5.14 Essentially the arguments for the adoption of the ICNIRP guidelines are international consistency, consumer certainty, they have a factual basis, still prescribe very safe levels, and will potentially result in a reduction of phone cost because of the economies of an international market.

5.15 The benefits of international harmonisation of standards include:¹³

- increased public confidence;
- reduction of debate and fears;
- protection of people to the same high level;
- benefits to health care would be expected to result from having harmonised standards;
- consumer information advantages, including consumer benefits arising from consistency in product information provided;
- global consistency takes away misunderstanding.

5.16 Another argument for the science-based standards is that they take away the subjectivity or various opinions of people, and provide consistency with the notion that standards should be based on something substantiated.¹⁴

5.17 In the case of EMR there is a threshold below which no health effects are found but above which there are. This threshold is the basis for the health-based standard.

12 Dr Black, *Proof Committee Hansard*, 8/9/00, p 56 and Submission 93, [21], [52]; Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 9.

13 Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 6; AMTA, *Proof Committee Hansard*, 8/9/00, pp 37-38, MMF, *Proof Committee Hansard*, 2/3/01. pp 361-2.

14 Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 12.

The standard is set at 50 times below the level at which health effects are starting to be seen.¹⁵

5.18 The case for harmonisation of standards is based on the fact that there is no known health benefit from reducing EMR levels (there being a threshold below which no health effect is seen), however lowering levels will incur costs, and technologies which could be very beneficial to health will be impeded, including emergency services and the like.¹⁶

5.19 The World Health Organisation recommends the ICNIRP (international) standard, because it is a science-based standard and WHO supports standards harmonisation.¹⁷

5.20 Arguments before the Committee for retaining the emission levels in the existing interim standard are that the levels are lower and safer (higher safety margin) and as they are achievable there is no reason to allow higher levels - setting lower permissible levels of emissions encourages industry to be innovative in safety.¹⁸

5.21 CSIRO expressed scepticism about the scientific basis of the ICNIRP standards and suggested that it is not just coincidental that the ICNIRP limits are very convenient for the telecoms industry.¹⁹ Arguably, the potential for health effects at EMR levels below the ICNIRP guidelines justifies maintenance of existing standards that are, in some respects, higher.

5.22 It is noted that other witnesses attested to “serious flaws” in the current ICNIRP guidelines.²⁰

5.23 Labor Senators are confident that ARPANSA has taken all of the issues into account in formulating the draft standard and has made an independent assessment of issues relevant to applying a precautionary approach.

Labor Senators conclude that there is currently no scientific evidence to support the proposition that maintaining lower permissible levels of RF radiation in the standards will decrease the potential for health effects, and that therefore there is no compelling scientific argument for such action at this time. However, Labor Senators support ongoing research in this area.

15 Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 14; Dr Black, *Proof Committee Hansard*, 8/9/00, p 60.

16 Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, pp 16-17.

17 *Proof Committee Hansard*, 31/8/00, p 13.

18 Mr Dalton, Submission 40, *Proof Committee Hansard*, 22/9/00.

19 *Proof Committee Hansard*, 16/11/00, p 229.

20 Mr Maisch, *Proof Committee Hansard*, 22/9/00, p 74; Mr Fist, *Proof Committee Hansard*, 16/11/00, p 192 (flawed because “we make our standards on the basis of evidence accumulated in corrupt countries”); Dr Cherry, *Proof Committee Hansard*, 2/3/01, p 339.

Metals industry and EMR standards

5.24 OneSteel Market Mills gave evidence to the Committee that there is an apparent anomaly in the interim standard as it includes frequencies employed by the metals industry for induction heating applications and manufacturing of steel tube²¹ which are qualitatively different from applications in the communications industry.²²

5.25 OneSteel seeks a separate standard for the frequency range utilised in the metals industry which recognises the distinct nature of the exposures.²³ The terms of reference of this Inquiry explicitly require an examination of the current Australian Interim Standard *as it applies to telecommunications*, and clearly this issue falls outside the breadth of that term.

5.26 ARPANSA has indicated, however, that the inclusion of the relevant frequency range is not an anomaly in the standard, rather the standard is intended to regulate exposures in the industries utilising those frequencies.²⁴

Although acknowledging the problem, Labor Senators consider that the issue would more appropriately be raised in the standard setting process being undertaken by ARPANSA.

21 *Proof Committee Hansard*, 16/11/00, p 204.

22 *Proof Committee Hansard*, 16/11/00, pp 205, 210.

23 *Proof Committee Hansard*, 16/11/00, p 212.

24 *Proof Committee Hansard*, 2/3/01, pp 341-2, 347.

6. TERM OF REFERENCE (E) - ARPANSA'S STANDARD SETTING RESPONSIBILITY

6.1 The fifth term of reference for this inquiry requires an examination of the merits of the transfer of the responsibility for setting a new Australian standard for electromagnetic emissions to the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA).

Draft ARPANSA Standard

6.2 Australian Standard setting efforts are presently being coordinated by ARPANSA, and a draft standard (Radiation Protection Standard - Maximum exposure levels to radiofrequency fields - 3kHz to 300GHz) has been released for public comment until 11 May 2001.

6.3 The draft standard has been prepared under the auspices of the Radiation Health Committee, established pursuant to the *Australian Radiation Protection and Nuclear Safety Act 1998*. A working group set up by the Radiation Health Committee has undertaken the work of drafting the standard.¹

ARPANSA's role in standard setting - appropriateness

6.4 ARPANSA's role and processes for formulating the standard have been criticised,² its independence questioned, and the lack of public input/community consultation has been considered inappropriate.³

6.5 The ongoing failure of Standards Australia to achieve an outcome was predominantly due to the failure of Standards Australia's structures and procedures to enable it to overcome contentious issues. This seemingly warrants a change in the composition of the decision-making body from that of Standards Australia if outcomes are to be achieved.

6.6 On the other hand, witnesses indicated support for ARPANSA's role because the Committee is comprised of experts in the field, is independent, and well-informed and positioned to make an unbiased decision regarding the appropriate standard for

1 *Proof Committee Hansard*, 2/3/01, p 340.

2 CSIRO, *Proof Committee Hansard*, 16/11/00, pp 234, 245; Dr French, *Proof Committee Hansard*, 16/11/00, p 264; Mr Maisch, *Proof Committee Hansard*, 22/9/00, pp 100-101.

3 Mr Dalton, Submission 40 and *Proof Committee Hansard*, 22/9/00, pp 152, 153; Mr Maisch, *Proof Committee Hansard*, 22/9/00, p 81; EMRAA, *Proof Committee Hansard*, 16/11/00, p 249.

Australia.⁴ It is most suited for the task of standard development by virtue of its resources, experience and statutory backing.⁵

6.7 Mr Lincoln of the EMRAA suggested that there was a fair representation of the Australia community on the ARPANSA Working group and that it did not have “any disagreement with it”.⁶ However Mrs McLean, also of the EMRAA, stated:

I believe that industry should be excluded. I do not think industry has a role on standards committees; I think industry should be encouraged to meet whatever standards, from a public health perspective, are decided are appropriate.⁷

6.8 In response to that comment Mr Lincoln indicated “My difficulty is that we are talking about a fairly technical subject and there are few people outside industry who would understand it in any way”.⁸ Mr Lincoln also concurred that “necessarily, to have an effective working committee devising regulations and standards you would have to draw on resources from those areas [experience in industry or academia]”.⁹

6.9 The limited number of people with adequate expertise in the issues that need to be resolved in the standard setting process necessitates this approach.

ARPANSA Draft and prudent avoidance/precautionary approach

6.10 Criticism has emerged that members of the ARPANSA working group were advised not to take prudent avoidance into account in the course of developing the new standard.¹⁰

6.11 Prudent avoidance and “the precautionary principle” are issues that have arisen a number of times throughout this Inquiry. A number of witnesses before the Committee have urged adoption of a precautionary approach to mobile phone standards and use.¹¹ Although witnesses used the expression ‘precautionary

4 AMTA, *Proof Committee Hansard*, 8/9/00, p 34; ACA, *Proof Committee Hansard*, 16/11/00, pp 298-299, p 308 and Submission 100, p 2; ntl, *Proof Committee Hansard*, 2/3/01, p 390.

5 ACA, *Proof Committee Hansard*, 16/11/00, p 298.

6 EMRAA, *Proof Committee Hansard*, 16/11/00, p 244.

7 *Proof Committee Hansard*, 16/11/00, p 252.

8 *Proof Committee Hansard*, 16/11/00, p 252.

9 *Proof Committee Hansard*, 16/11/00, p 252.

10 Dr Hocking, *Proof Committee Hansard*, 22/9/00, p 94; CSIRO, *Proof Committee Hansard*, 16/11/00, p 234.

11 For example Mr Maisch, *Proof Committee Hansard*, 22/9/00, p 76; Dr Hocking, *Proof Committee Hansard*, 22/9/00, p 108; Assoc Prof Fisher, *Proof Committee Hansard*, 22/9/00, p 164; Mr Fist, *Proof Committee Hansard*, 16/11/00, p 193; CSIRO, *Proof Committee Hansard*, 16/11/00, p 221; Mr Dwyer, CEPU, *Proof Committee Hansard*, 16/11/00, p 274. See further footnote 24 below.

principle’, the measures they favoured amounted to a precautionary/cautionary approach rather than an invocation of the actual principle.

6.12 The precautionary principle has its origins in UN debates and is formally embodied in the Rio Declaration on Environment and Development. It has subsequently been incorporated into a number of documents – most recently the Biosafety Protocol on the mutually supportive relationship between the WTO Agreement and Environmental Agreements.

6.13 The precautionary principle is set out in Principle 15 of the 1992 *Rio Declaration*, to which Australia is a signatory:

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. When there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.¹²

6.14 The Organisation for Economic Cooperation and Development (OECD) paper entitled *Environmental principles and concepts* states:

The “Precautionary Principle” evolved from the recognition that scientific certainty often comes too late to design effective environmental policy responses; it thus recommends action in responding to potential environmental threats instead of waiting for absolute scientific proof. Formulations vary widely.¹³

6.15 In February 2000, the European Commission adopted a *Communication*¹⁴ on the Precautionary Principle, in order to reach a legal definition. This includes discussions about the underlying concepts of ‘risk’ and ‘scientific certainty’. The intention of the document was to establish conditions under which the European Union could invoke the Precautionary Principle. The EC Communication states that:

12 'Rio Declaration on Environment and Development', In *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992*, [New York]: United Nations, 1992, available at: <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>

13 OECD, *Environmental principles and concepts*, 6 November 1995, Paris, (OCDE/GD(95)124, p.15), available at: [http://www.oalis.oecd.org/olis/1995doc.nsf/c56e3fc6689dd81d4125669e003b67bc/beab041cd98a7de3c125626c006be6f3/\\$FILE/11E50299.ENG](http://www.oalis.oecd.org/olis/1995doc.nsf/c56e3fc6689dd81d4125669e003b67bc/beab041cd98a7de3c125626c006be6f3/$FILE/11E50299.ENG)

14 *Communication from the Commission of the European Communities on the precautionary principle*, COM(2000)0001, 2/2/2000, Brussels. Available at: http://www.europa.eu.int/comm/off/com/health_consumer/precaution.htm

...the precautionary principle is a general one which should in particular be taken into consideration in the fields of environmental protection and human, animal and plant health.¹⁵

6.16 In Australia, the precautionary principle was included as a principle in the 1991 Intergovernmental Agreement on the Environment (IGAE) and was subsequently signed off by Federal and State Governments in the 1992 Ecologically Sustainable Development (ESD) Strategy. The most notable example of the principle being incorporated in Australian legislation is the *Environment Protection and Biodiversity Act 1999*.¹⁶

6.17 There was considerable debate before the concept “lack of full scientific certainty” was included in the *Gene Technology Act 2000* (section 4aa) in December 2000.

6.18 During the 9 December 1998 Senate debate on the Australian Radiation Protection and Nuclear Safety Bill 1998 the precautionary principle was mentioned, however, the concept is not referred to in the *Australian Radiation Protection and Nuclear Safety Act 1998*. The object of the Act is to:

Protect the health and safety of people, and to protect the environment, from the harmful effects of radiation.¹⁷

6.19 There is a growing movement to adopt precautionary approaches to manage health risks with scientific uncertainty. The World Health Organisation indicated that it does not normally advise national authorities to go beyond established knowledge, rather it sets health assessments based on accepted knowledge.¹⁸

6.20 On the other hand, CSIRO indicated that “there are particular areas where we must be sensitive to certain issues and therefore need to err on the side of caution”,¹⁹ for example, where public safety is concerned. The basis for incorporating a precautionary approach into the standard is “to make the point that this is not absolutely protective – that the standard is based on available evidence relating to thermal effects. These other low level effects are still uncertain”.²⁰

6.21 That is, since “the jury is still out on this debate ... a precautionary principle would seem a good idea ... in this area”.²¹

15 Ibid. At p.10.

16 Pursuant to section 391 the Minister must consider precautionary principle in making decisions.

17 Section 3.

18 *Proof Committee Hansard*, 31/8/00, p 6.

19 *Proof Committee Hansard*, 16/11/00, p 236.

20 CSIRO, *Proof Committee Hansard*, 16/11/00, p 236.

21 CSIRO, *Proof Committee Hansard*, 16/11/00, p 236.

6.22 The World Health Organisation advised the Committee that the European Commission's criteria for using the precautionary principle lead to the conclusion that it should not be applied to EMF. This does not preclude precautionary measures – it is just that you cannot invoke an established principle like the precautionary principle.²²

6.23 Normally, uncertainty is dealt with in a science-based way by using safety factors that incorporate reductions in the exposure levels to account for the uncertainties and unforeseens.²³ The precautionary principle was not considered applicable to EME in the WHO's view, although considerable support has been expressed for a sensible, precautionary approach.²⁴ However, WHO did acknowledge that there is a growing movement to adopt precautionary approaches to manage health risks with scientific uncertainty.

6.24 A “precautionary approach” to address public concerns rather than invocation of the “precautionary principle” is the favoured approach. It has been suggested that this can include ongoing research, encouraging manufacturers to keep exposures to the minimum needed for the technology (including SAR testing and disclosure), better risk communication, targeting audiences with honest and accurate information, involving the public in decision making, and siting facilities to minimise public exposure and concerns.

Precautionary approach in ARPANSA draft standard

6.25 The draft Radiation Protection Standard formulated by the ARPANSA working group includes a precautionary statement that:

22 Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 6.

23 Dr Repacholi, WHO, *Proof Committee Hansard*, 31/8/00, p 5.

24 Dr Hocking, *Proof Committee Hansard*, 22/9/00, p 108; EMF South World P/L, *Proof Committee Hansard*, 8/9/00, p 65, 68; Mr Maisch, *Proof Committee Hansard*, 22/9/00, p 96 (“we have to be cautious” due to uncertainty of potential health effects); Prof. Fisher, 22/9/00, pp 181, 183; Mr Fist, *Proof Committee Hansard*, 16/11/00, pp 193, 199 (uses the expression ‘precautionary principle’ but suggests a cautionary approach/precautionary statement); Ms Corbin, CTN, *Proof Committee Hansard*, 16/11/00, p 218; Dr Haddad, CSIRO, *Proof Committee Hansard*, 16/11/00, pp 221, 235-6 (uses the expression ‘precautionary principle’ but suggests a precautionary warning “to make the point that this is not absolutely protective” at 236); Mr Lincoln, EMRAA, *Proof Committee Hansard*, 16/11/00, pp 243-4, 247; Prof McKenzie, *Proof Committee Hansard*, 16/11/00, p 272; Mr Dwyer, *Proof Committee Hansard*, 16/11/00, pp 274-5; Mr Doull, *Proof Committee Hansard*, 2/3/01, p 408. Taking different views were Dr Cherry (a precautionary approach is inadequate protection) *Proof Committee Hansard*, 2/3/01, p 339; and MMF (the safety factor in the standards is a sufficient precautionary approach), *Proof Committee Hansard*, 2/3/01, p 371.

It is generally sensible, in achieving service or process requirements to minimise unnecessary or incidental RF exposure, provided it does not introduce other risks and can be achieved at modest expense.²⁵

6.26 The draft standard details risk management processes for the hazards associated with RF exposure. Contrary to criticism that the working group had been directed not to consider precautionary approaches, clearly the draft standard adopts a precautionary approach.

Labor Senators support the inclusion of precautionary measures in the new standard, and consider the approach taken in the draft standard to be sensible.

Labor Senators find no substantial criticism of the transfer of the responsibility for setting a new Australian standard for electromagnetic emissions to the Australian Radiation Protection and Nuclear Safety Agency.

SENATOR MARK BISHOP

A.L.P (W.A.)

25 Dr Loy, ARPANSA, PCH, 2/3/01, p.344; ARPANSA, “Draft Radiation Protection Standard – Maximum exposure levels to radiofrequency fields – 3kHz to 300GHz”, Section 5, p.22, http://www.arpansa.gov.au/pubs/d_rf_prot_stnd.pdf. Also Annex 6.

APPENDIX 1 – CRITIQUE OF CHAIR’S REPORT

1.1 Labor Senators concluded in Chapter 2 of this Report that the Chair’s Report is untenable because certain recommendations, conclusions and evidence in the body of the report are erroneous and specious considering the actual evidence. As outlined above (Chapter 2), the basis of this judgment by Labor Senators is that in the Chair’s Report:

- a) Some recommendations and evidence are outside the terms of reference of the Inquiry, whilst other evidence that was also outside the terms of reference is not in the report.
- b) Some recommendations and conclusions are nonsensical and unfounded in the light of the evidence, some contradict the evidence presented to the Committee and some even contradict the Chair’s own conclusions on the evidence.
- c) Certain evidence has been given undue weight notwithstanding dubious credibility of witnesses or weight of evidence to the contrary.
- d) Evidence has been distorted or taken out of context.
- e) Other recommendations do not seem to have been clearly thought out, as they lack detail or are imprecise.

1.2 Justification of each of these criticisms follows.

(a) Issues extraneous to terms of reference

1.3 It is important that the Committee confines its deliberations and conclusions to the terms of reference of an Inquiry. Even though considerable evidence was presented to the Committee on matters extraneous to the terms of reference of this Inquiry, the Committee had requested that comments to the Inquiry be confined to the specific terms of reference. As such, any evidence outside the terms of reference cannot be considered to represent the range of opinions on a particular issue, as there has been no proper opportunity for comment. It is inappropriate for the Committee to make recommendations and conclusions on issues outside the terms of reference when it has not properly or fully inquired on those matters.¹

1.4 Additionally recommendations made by the Chair were not raised in evidence received by the Committee.² Other recommendations made by the Chair were strongly criticised in evidence to the Committee from witnesses.³

1 Recommendations 2.1, 2.2

2 Recommendations 2.8 – that the Government sponsor conferences (the Chair has not justified this recommendation or demonstrated a need for it, nor was it recommended or even mooted by witnesses).

1.5 Other evidence that was also outside the terms of reference of the Inquiry is not in the report, suggesting apparent selection of material to be included based on its utility in supporting the Chair's argument or conclusions.⁴

(b) Chair's recommendations/conclusions inconsistent with evidence

1.6 The Chair has reached a number of conclusions in the body of the report that contradict, or are simply very different from, the recommendations in the report.

1.7 For example, Recommendation 2.9 in the Chair's report contradicts the Chair's conclusion that it is not for the Committee to determine/direct how research funding should be allocated. The Chair's conclusion was correct, it is neither within the Committee's competence nor is it the Committee's role to direct experts as to how funding should properly be allocated. As such, the Chair's recommendation is inappropriate and improper.

1.8 Recommendation 4.1, that the Committee recommends that the radiofrequency standard be defined and administered by a process similar to that used by Standards Australia is nonsensical. If the process envisaged by the Chair resembles that which occurred previously and failed, it is likely that a similar outcome would eventuate. As a consequence Australia would remain with an unsatisfactory Standard, contributing to the confusion of the general public as well as to those who are supposed to comply with the Standard.

1.9 The merits or otherwise of the Chair's recommendation 2.8 (that the Commonwealth Government consider sponsoring conferences on the health effects of radiofrequency radiation along similar lines to that conducted on gene technology) were not discussed in evidence before the Committee. In fact, the issue was not raised at all.

1.10 The NHMRC advised the Committee that it went to some lengths to prevent the perception of conflict of interest in their procedures for allocating funds. For example, Dr Ken Joyner is only a non-voting member of the NHMRC Expert Committee. Despite the comment made at paragraph 3.79 of the Chair's report, it is difficult to see how the NHMRC could make greater efforts to ensure it is perceived to

3 Recommendation 2.7, criticised by Dr Swicord and Dr Joyner, MMF, PCH, 2/3/01, p.372-5; Dr Black, OCH, 8/9/00, p.64.

Recommendation 3.1 \$5 annual charge on mobile phone users – notwithstanding considerable support for more research, the \$5 charge was questioned by NHMRC and MMF because it is doubtful whether there is sufficient expertise in Australia to achieve quality results from that considerable quantum of research funding; whether the amount is justified by the amount of uncertainty; whether this action is premature considering the WHO EMF Project is yet to report on the outcomes of many international and Australian studies (in 2005). It is also important that the need for more EMR research in Australia is balanced against other health research requirements.

4 For example, the dangers associated with mobile phones and driving; the health effects that may be associated with stress arising from concerns about potential health risks from exposure to EMR.

be at arms-length from the telecommunications industry, short of excluding experts in the field from the Committee.

1.11 The inclusion in the Chair's report of material from scientists who applied for funds, but were not awarded grants (paragraphs 3.89-3.91), belies the comment at 3.100 that it is not the role of the Committee to advocate which projects should have been funded.

(c) Relative credibility of witnesses – distorted in Chair's report

1.12 It seems that certain witnesses have been afforded undue weight in the Chair's deliberations, notwithstanding questionable credibility of witnesses or weight of evidence to the contrary.

1.13 The evidence of Dr Cherry has been given an inordinate amount of attention in the Chair's report. This is the case in spite of the fact that much of Dr Cherry's evidence has been criticised by scientific experts who gave evidence before the Committee. Dr Cherry himself stated in evidence before the Committee that "I come to totally different conclusions than Dr Moulder, Dr Black, Dr Elwood and Dr Repacholi",⁵ all experts in this field. Clearly, balancing the opinions of these experts against those of Dr Cherry calls into question the relative weight that should be accorded the evidence of Dr Cherry.

1.14 Dr Cherry works in the area of agricultural meteorology⁶ and appeared as "an independent academic scientist and senior academic at Lincoln University who has researched these effects, ... [who] appeared in the first base station court case in New Zealand in 1995 [and who has] been researching the issue to try to see whether there are public health effects and biological effects".⁷

1.15 Yet Dr Cherry conceded to the Committee that:

I am involved in direct research into natural electromagnetic radiation and the effects on public health and relating those studies, but it is correct that I am largely quoting other peer review published literature and looking carefully at that literature and applying scientific techniques to it. ...

1.16 In public hearings Senator Bishop commented:

You do not engage in original research in this particular narrow field as a number of other witnesses have, but you have done extensive analysis and

5 PCH, 2/3/01, p.330.

6 PCH, 2/3/01, p.333.

7 PCH, 2/3/01, p.328.

evaluation of the work carried out by others. I just wanted to establish that...⁸

1.17 Dr Cherry responded:

That is generally true, but I have also taken the opportunity to meet with the others where possible and to check my analysis to make sure that it is correct.⁹

1.18 A review carried out by the Institute of Environmental Science and Research commissioned by the New Zealand Ministry of Health in June of last year concluded (at pages 30, 31, 32 and 33):¹⁰

Overall, one is left with the impression that Cherry either has not had the skills to properly evaluate and extend the published cancer epidemiological analyses, or has not applied an objective approach, or possibly both. This review engendered no confidence that Cherry has the expertise or the objectivity to evaluate the other areas of radio frequency epidemiology covered in his critique. ... in conclusion, based on the assessment set out above, this reviewer could not recommend that Dr Cherry's critique of the ICNIRP Guidelines be accorded weight in determining the final shape of the New Zealand guidelines for the siting of radio frequency transmission sites.

However, he [Dr Cherry] shows only limited awareness of the potential for bias (confounding, selection bias, and information bias), not only in his assessment of the published results of studies, but also in his own re-analyses of the data of others. That, in this reviewer's opinion, is the most fundamental problem with Dr Cherry's analysis of the epidemiological literature. It is a pervasive issue that renders most of his re-analyses and reinterpretations invalid, or, at least, highly suspect.

1.19 Dr Cherry responded that the reviewer's conclusions have "so little substance that it looks like a predetermined view right from the start. I am not surprised at that, because Dr Bates, who wrote that report, told me his opinion before he wrote it. I reject his criticism as being unjustified, and it is certainly not justified by his report".¹¹

1.20 The Chair's report affords greater weight to the evidence of Dr Cherry than appears to be warranted, particularly where his views contradict the conclusions of expert review panels such as the recent respected and comprehensive UK Stewart Report.

1.21 Dr Repacholi made the following comments in response to the statements about him in Dr Cherry's submission:

8 PCH, 2/3/01, p.333.

9 Ibid.

10 PCH, 2/3/01, pp.334-5.

11 PCH, 2/3/01, p.335.

...Dr Cherry has no credibility to make any meaningful accusations of scientific professionals who have worked in the EMF field for over 30 years. What Dr Cherry does not mention in his resume is that he was elected to local government using the EMF issue and has been [a] crusader ever since, ensuring that his misinterpretation of the facts will keep the issue alive along with electoral success. ...

Dr Cherry has no credible scientific publications in this field, lacking even one peer reviewed publication, and has done no research related to biological effects of EMF. He goes from conference to conference giving abstracts that are never submitted to scientific peer review for publication. Conference abstracts have no value in science until all information is provided in a full scientific paper. The most reliable scientific papers should be published in peer-reviewed scientific journals.

No one denies the right of Dr Cherry to make valid criticisms about the science ... this is part of the scientific process. However, such criticisms must be submitted to peer scrutiny to determine their worth...something that occurs in blue-ribbon review panels.

The sum total of Dr Cherry's knowledge comes from his "selective reviews" that he publishes himself. Not only does Dr Cherry only present studies that support his own case, he mostly fails [to] cite studies that do not support his views...this is something that is not done by any credible scientist or organization with which WHO is associated. Further, his reviews cover studies that need specialist interpretation; for example by biologists, epidemiologists, clinical specialists and physical scientists. To conduct the reviews that Dr Cherry claims to do, WHO would bring together specialists from all these disciplines to obtain their expert assessments of all the studies, giving evidence both for and against there being an effect, and then reach consensus conclusions and recommendations through the standard "weight of evidence" approach. An Agricultural Meteorologist does not appear to fit this requirement.

Without exception all national or international scientific review panels have reviewed all the same studies as Dr Cherry and reached the same conclusions at the WHO and ICNIRP.¹²

1.22 Dr Black, in his submission, also refers to concerns arising "when people take scientific information out of context, or, more commonly, are led to do so by a minority of scientists and others who make incorrect interpretations of the scientific literature".¹³

12 Rebuttal to accusations made by Dr Neil Cherry to Australian Senate Committee on Health Effects of Electromagnetic Radiation, Dr Repacholi, World Health Organization, Geneva, 5 October 2000, p 1.

13 Submission 93, p.3.

1.23 Furthermore, in the Chair's report, there appears to be an implied adverse reflection on the professionalism/integrity of Dr Repacholi in referring to his 'industry' links.¹⁴ There are vested interests other than industry involved in this debate and, while the industry interests have been criticised,¹⁵ other vested interests have not been acknowledged in the Chair's report.¹⁶ Additionally, Dr Repacholi suggested that Dr Cherry may have a vested interest in promoting a particular viewpoint on this issue by virtue of his role in local government, a perspective not presented in the Chair's report.¹⁷

1.24 Other opinions afforded undue attention include Dr Sykes who is mentioned in Paragraph 3.89 even though she was not a witness or submitter to the Inquiry.

1.25 Curiously, the expert evidence of ARPANSA, in general, seems to have been ignored by the Chair's report - especially in relation to the conclusion that ARPANSA should not have responsibility for the new Standard.

(d) Evidence taken out of context/distorted

1.26 There are examples in the Chair's report which Labor Senators perceived as misinterpretation or distortion of the evidence presented to the Committee.

1.27 For example, in the Report, paragraph 3.95 implies that the CSIRO criticised the RF EME Research Program, but the quotation appears to have been taken out of context. The context of the quote was in relation to the research situation at the time the CSIRO wrote its report (ie pre-1994). Dr Barnett does say that the situation has probably not changed since then, but that comment is not so strong as the way it has appeared in the Chair's report. The full quote is:¹⁸

The government at that time appreciated that there was reasonable cause for concern to undertake some sensible structured program of research, which up until then did not really exist and probably still does not.

Research has been sporadic. The results have been controversial and contradictory. It is not really surprising. Unless you have a properly structured and directed system of research, you will not overcome the initial problem of the undirected sporadic bits of research that are carried on, sometimes not particularly well.

1.28 Peer review is an important element of scientific research despite shortcomings identified in the Chair's report.¹⁹ However, the Chair seems to place

14 Chair's Report at paragraph 2.218.

15 Chair's Report at paragraphs 2.217, 2.223.

16 For example those of researchers involved in the manufacture of shielding devices.

17 Footnote 12.

18 *Official Committee Hansard*, 16/11/00, pp 223-224.

19 Peer review is discussed at paragraphs 2.46 – 2.53 of the Chair's Report.

insufficient emphasis on the importance of peer-review in scientific research. This is particularly so given the references to Dr Cherry's analysis, which has not been peer-reviewed.

1.29 There is a comment at paragraph 3.129 about the level of uncertainty about the safety of cellphones identified in so many scientific studies which seems to overemphasise the case.

1.30 Furthermore, the Chair seems to, inappropriately, give equal weighting to the views of those who are not directly involved in research in this area.²⁰

(e) Recommendations imprecise

1.31 An example of the Chair's recommendations being imprecise, and consequently problematic, is the Chair's recommendation 4.2, that the level of 200 microwatts per square centimetre in the expired Interim Standard (AS/NZS 2772.1(Int):1998) be retained in the Australian Standard.

1.32 A specific recommendation about a measurement of power flux density (ie 200 microwatts per square centimetre) should specify whether it applies to all people or whether it maintains the differences between the occupationally-exposed and non-occupationally-exposed population, in the expired Standard.

1.33 The recommendation requires some comment about whether this would be an instantaneous measurement (which may not be possible), whether it be averaged over some time period, or over some amount of tissue. $200 \mu\text{W}/\text{cm}^2$ would provide a lower level of exposure than exists at present but at frequencies below 10 MHz, power flux density is not the appropriate measurement to use, according to ARPANSA.

1.34 The expired Interim Standard adopted this exposure level for the non-occupationally exposed population for frequencies above 10 MHz. The draft ARPANSA Standard adopts this exposure level for general public exposures between 10 MHz and 400 MHz, but then allows increasing levels with increasing frequencies.

1.35 In addition, that recommendation of the Chair's report comments that Australia should not adopt the ICNIRP Guidelines, but it implies support for the expired Interim Standard which was based in some part on the International Radiation Protection Association (IRPA) Guidelines and IRPA became ICNIRP. This is not a logical argument.

1.36 As concluded above (Chapter 2), the pervasive flaws, errors and misinterpretations in the Chair's report necessitate this Minority Report which represents Labor Senators conclusions based on evidence to the Inquiry.

20 For example, evidence of EMRAA at paragraph 2.45 of the Chair's Report.

APPENDIX 2 - GLOSSARY

Acronym	
AMTA	Australian Mobile Telecommunications Association
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
CSIRO	Commonwealth scientific and industrial research organisation
ELF	Extremely low frequency
EME	Electromagnetic energy
EMF	Electromagnetic field
EMR	Electromagnetic radiation
EMRAA	Electromagnetic Radiation Alliance of Australia
ICNIRP	International Commission on Non-Ionising Radiation Protection
NHMRC	National Health and Medical Research Council
PCH	Proof Committee Hansard
RF	Radiofrequency
SAR	Specific absorption rate
WHO	World Health Organisation