My questions to ARPANSA in relation to the ARPANSA Radiation Protection Standard Maximum Exposure Levels to Radiofrequency Fields - 3kHz to 300 GHz Standard and Fact Sheets

"ARPANSA *Radiation Protection Standard Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz* Standard also sets limits for pulsed radiation that are intended to eliminate possible effects where heating is not evident (non-thermal effects)." Source ARPANSA's webpage on Mobile Telephones and Health Effects - http://www.arpansa.gov.au/mobilephones/index.cfm

Question 1: How can the standard eliminate possible effects where heating is not evident, given -

a. the standards only acknowledge non-thermal effects in passing and indicate that they "cannot be ruled out",
b. that the evidence for them is inconsistent, and
c. further confirmatory studies need to be carried out, particularly in relation to SAR estimations before they can be considered?

[ARPANSA's response]
The limits in the Standard are designed to protect against all known adverse health effects and to prevent unwanted nuisance effects that may arise through heat stress but also electrical stimulation and auditory responses (i.e. the microwave hearing effect which is associated with pulsed fields). The later effects (for pulsed fields) is what the statement that you have cited from the ARPANSA fact sheet refers to as "non-thermal" effects.

[My Commentary]
From the response above it is important to understand the following:

1. Known adverse health effects appear to relate to "proven" health effects otherwise they would consider Insomnia, headaches, heart beat irregularities, immune system response, cancer and host of other health effects that have been attributed to RF but are not yet fully understood and so are ignored by ARPANSA. Health effects related to thermal exposure levels on the other hand are well known and proven.
2. The only obvious non-thermal effect that appears to be acknowledged by ARPANSA, who claim our RF standards protect us against, relates to unwanted nuisance effects such as microwave hearing. Not cancer, not DNA damage, not disruption to cellular processes or leaky membranes or holes in the blood brain barrier all of which have been attributed by independent scientist to EMR below the thermal threshold.
3. Microwave hearing which the standards are supposed to protect against is one of the more common anecdotal symptoms that people are claiming i.e. tinnitus (ringing in the ear) and other sounds that only developed after installation of smart meters. I think it is therefore fairly safe to assume that the non-thermal threshold in our RF Standards has not been set low enough.

From Mobile Telephones and Health Effects (fact sheet 13) "Some research has indicated that non-thermal effects resulting from low-level RF exposure may also occur. However, the existence of these effects and their implications has not been sufficiently established to allow for them in the Standard."

Question 2: This statement appears to be directly contradicting the previous statement made on your website in point 1 above. In one breath the ARPANSA is saying that non thermal effects are considered and then here (point 2) it implies they are not. Which is it?

[ARPANSA's response]
This statement refers to continuous RF exposure at low levels, whereas the previous statement refers to pulsed fields at levels above the limits of the Standard. As indicated above in our response to question 1, the Standard provides limits for pulsed fields which are not based on thermal models.

[My Commentary]
I understand clearly what ARPANSA is saying here in their answers above but it appears they have missed the real issue I am raising here. The big problem I have is with their fact sheet which relates to "Mobile Telephones and Health Effects". The last time I checked, mobile phones use pulsed signals and so the standards are supposed to consider non-thermal effects as mentioned in their answers to both questions 1 and 2. However they clearly say in the Mobile phone fact sheet that "Some research has indicated that non-thermal effects ……. may also occur ….the

existence of these effects and their implications has not been sufficiently established to allow for them in the Standard". This is clearly incorrect especially when ARPANSA says "the Standard provides limits for pulsed fields which are not based on thermal models". This is an example where we have conflicting statements that create confusion. There are more examples in this document which I call out. Of course what I suspect ARPANSA was trying to say is that other possible detrimental effects like DNA breaks, calcium efflux, arrhythmia etc. that have been attributed to non-thermal effects by some scientists are not sufficiently established to include protection against them in the standards.

In regards to non-thermal effects: "The review of scientific literature and consideration of possible low-level effects in the ICNIRP Guidelines (ICNIRP 1998) was noted. Around 80 studies relevant to the question of low-level interactions were identified in published peer reviewed journals after the ICNIRP cut-off date (1997) … those effects suggesting statistically significant biological interactions at SAR levels well below 1 W/kg need to be replicated satisfactorily, particularly if they are suggestive of harm, before they can form the basis of standard setting."

Questions 3: Given that our standards are over 11 years old and are based on guidelines from ICNIRP which are almost 15 years old –

a. How many research papers have been looked at since the standard was released?
b. Where are the reports on these studies that were reviewed and details of who the reviewers were along with their associations/affiliations?
c. Only studies up to 1997 were considered in the ICNIRP Guidelines on which our standard was developed and the latest date that I could find for other studies noted in the RF standards was the year 2000. Therefore, our standards are hardly current when they do not take into account latest research findings are they?

[ARPANSA's response]
ARPANSA is unable to specifically comment on the number of papers examined, nor can we comment on the affiliations or associations of reviewers of papers.

Since the publication of the Standard, ARPANSA has continued to monitor the research and considers that the Standard continues to provide a high level of protection. It is also noted that in 2009, ICNIRP issued a statement confirming the validity of their guidelines taking into account scientific advances in the 10 years since they were published (http://www.icnirp.de/documents/StatementEMF.pdf).

ARPANSA has established an Expert Panel to formally assess the scientific literature to determine whether there are any significant changes to the science underpinning the Standard and whether it continues to provide adequate protection. A report on the assessment of the literature is currently being prepared.

[My Commentary]
The big problem I have with this response is that it shows a complete lack of transparency. We have to believe that the expert panel that assesses the scientific literature is adequately qualified and has no ties with the industry (independent) to avoid conflict of interest scenarios. We also have to believe that they are constantly reviewing research papers as they are published and that ALL research, rather than simply cherry picking specific literature that is supportive of the current standards, is being looked at. I think that the odds are pretty good that should they release findings it is likely that they will show both potential effects and those that don't like they have done previously in the current standards. This approach is done to show a lack of consensus and that there is no definitive proof that the dangers are real due to confounding results thereby supporting the current view that the standards don't need changing. What I would like to see is why the results that show effects are not taken more seriously? What justification do they have to ignore such findings? It shouldn't be about weighing evidence – there are slightly more papers showing no effect vs effects so the weighting is in favour of no effect. The fact that there are examples that show effects they should be considered very carefully and not buried in some half baked statistics.
A "High level" of protection does not mean I am fully protected and being someone who is sensitive to RF I do not feel I am being adequately protected at all. Also If I assume that one of these so called experts was responsible for

responding to my questions, then I certainly have a reason to be concerned especially when they make simple but critical mistakes (see further).
The Victorian Government should never have been allowed to make statements on smart meter safety until the report that is being prepared had been finalised.

From Dr Karl Maret's Commentary on the California Council on Science and Technology Report "Health Impacts of Radio Frequency from Smart Meters" published January 2011. http://sagereports.com/smart-meter-rf/?p=368
"*There is considerable difference between the biological impact of pulsed microwaves, as produced by Smart Meters, compared to continuous waves, such as those produced by microwave ovens.* ***No distinction is made in the safety criteria between continuous and pulsed waves because of the narrow-minded focus on thermal damage alone****.*
Many scientific studies have pointed out that radio frequency radiation with different modulations and pulse characteristics produce different biological effects even though they may produce the same pattern of different specific absorption rate distribution and tissue heating (Levitt &Lai, 2010).
The potential health effects from chronic exposure to pulsed, low power density level electromagnetic fields might take several years to appear. These types of radiations produced by Smart Meters are of concern for their potential health impacts on the electrically hypersensitive part of the population*.*
The ICNIRP, IEEE and ANSI standards that are currently in effect consider only thermal effects of microwave radiation where the energy absorption is fairly linear and thus the protective guidelines are logical. However these energy absorption guidelines would not be appropriate when frequency-specific amplitude windows are involved leading to adverse biological effects that can depend on modulation patterns, pulse repetition rates, duty cycles, and other frequency spectrum characteristics."

Question 4: As our RF standards are based on ICNIRP Guidelines and only provide a level of protection against known thermal effects, I would like to know whether ARPANSA is planning to address concerns made by credible independent scientists such as Dr Karl Maret that our standards are not appropriate for providing assurances for pulsed microwave emissions (i.e. smart meters, mobile phones etc.) because they do not consider adverse biological effects that may occur below the thermal threshold?

[ARPANSA's response]
As mentioned in our response to Question 3 above, ARPANSA has established an Expert Panel to assess the scientific literature published since the publication of the Standard.

[My Commentary]
ARPANSA cannot provide an answer. It is nice that ARPANSA has a so called Expert Panel but where is there commentary on why they choose to ignore claims that our standards are not appropriate. Dr Karl Maret is not the only independent scientists making such claims. I would like to see some scientific justification as to why statements made by credible scientists such as Dr Maret are not considered correct. I would like an expert opinion from ARPANSA that addresses the last paragraph made by Dr Karl Maret which I will repeat here again for context: "The ICNIRP, IEEE and ANSI standards that are currently in effect consider only thermal effects of microwave radiation where the energy absorption is fairly linear and thus the protective guidelines are logical. However these energy absorption guidelines would not be appropriate when frequency-specific amplitude windows are involved leading to adverse biological effects that can depend on modulation patterns, pulse repetition rates, duty cycles, and other frequency spectrum characteristics."

There are over 3000 scientific studies that show consistent evidence dating back to 1920s with most recent being released this year that clearly demonstrate the existence of non-thermal biological effects. Some of these studies were once confidential reports created by military doctors and have now been published and are publicly available. We also have many peer review studies referenced by the BioInitiative report (2007) and (2012), Powerwatch.org.uk, US Navy Research Papers, peer reviewed research papers found in pathophysiology journals and the US national library of medicine etc. I am more than happy to post you copies if required.

Question 5: How many more reports showing unequivocal evidence of biological effects such as DNA breaks, calcium efflux, increased production of histamines and mast cell count plus a host of other effects that have potential health effects etc. before ARPANSA will recognise that non-thermal effects do exist and that there is a

real potential health crisis looming because of the ever increasing incidence of manmade Radio Frequency emissions in our environment?

[ARPANSA's response]
The health implications of biological effects below the limits specified in the RF Standard are not known. Accordingly, there is no established data for bio-effects below the limits that could be used for setting the levels of the basic restrictions. There is an extensive wold wide research program into the health effects of low level RF exposure. ARPANSA will review the limits of the Standard if evidence does emerge of a causal link between low level RF exposure and adverse health effects in humans.
As previously mentioned ARPANSA has established an Expert Panel to assess the scientific literature published since the publication of the Standard.

[My Commentary]
I would argue that there is a lot known about the biological effects. I mentioned a whole list of effects that can have health implications in my question above, many of them occur below the thermal threshold, yet it appears ARPANSA refuses to acknowledge them. This lackadaisical attitude has also been experienced by me with ARPANSA's treatment of my sensitivity – EHS has not been linked to EMR because the WHO says so and therefore there is no interest to investigate it. What people need to understand is that WHO does recognise EHS symptoms by stating that 'EHS is not a medical diagnosis, but that THE SYMPTOMS ARE CERTAINLY REAL' (i.e. not psychosomatic) and that 'EHS can be a very disabling problem for the affected individual.' What is not fully known is the biological process by which these effects occur and so it is difficult to provide a causal link. Rather than waiting until the evidence accumulates to a point it cannot be ignored (by then it will be too late for many) and especially when there is a reasonable probability that RF is carcinogenic, our standards should have been based on the identification of the Lowest Observed Adverse Effect Level, (LOAEL) and a reasonable safety factor to take into account the uncertainties and vulnerable members of the community. It should also be noted that the IARC did find a weak causal link between mobile phone usage and certain brain cancers. Perhaps ARPANSA should familiarise itself with the IARC Monograph that was recently published this year.
Although the regulatory side is not within ARPANSA's scope it would have been sensible for ARPANSA to advise the ACMA to recommend a precautionary principle to the Victorian Government and the Power Companies when rolling out wireless communication devices in every household and business in Victoria. Now everyone has become exposed to wireless whether they like it or not and this has been done knowing full well that microwaves have been classified as a Group 2B Carcinogen.

As I described in the included letter, ICNIRP only acknowledges the existence of thermal effects for RF EMR. ICNIRP's opinion is that the non-thermal effects are not proven and that they are unlikely to exist. However, the IARC classification contradicts this opinion and indicates that non-thermal effects do exist. The decision to classify RF EMR as possible carcinogen was based predominantly on the results of the Interphone study and studies performed by the Swedish group working under Professor Lennart Hardell, which showed that long time use of a cell phone might increase the risk of development of brain cancer.

What this means is that there are possible health effects (cancer) developing in people who are using regular cell phones which are compliant with current ICNIRP radiation emission safety limits. Radiation emitted by such phones should not cause thermal effects or be associated with thermal based health risks. Given that mobile phones are supposed to be below the ICNIRP guidelines then any induced health effects must be non-thermal in nature which as a consequence has led to scientists observing an increased health risk – that there is a risk of developing of brain cancer if you use a mobile phone for 10 years or more. This is of course is what a lot of independent scientists have been saying all along and yet ICNIRP, WHO and ARPANSA hold fast to the thermal paradigm and ignore mounting evidence that says otherwise.

Question 6: How do our standards protect us when -

a. They do not consider non-thermal interactions when research described above, which was used by the IARC to make a statement that RF EMR is a group 2B carcinogen and thereby validating the real

possibility of non-thermal effects and show an elevated risk of getting a brain tumour for mobile phone users who use the phone for around 30 minutes a day for 10 years (This is now the norm for today's users)?

[ARPANSA's response]
The IARC classification of RF EMR as a group 2B carcinogen is based on limited epidemiological evidence showing a possible association between heavy users of wireless phones (mobile and cordless phones) and glioma and acoustic neuroma. IARC found that the evidence for occupational and environmental exposures (such as exposures from mobile phone base stations and smart meters) were inadequate. IARC's assessment does not discuss what level of risk might be associated with a particular level of exposure. IARC found inadequate evidence for biological mechanisms causing carcinogenesis which is directly related to standard setting.

[My Commentary]
Again ARPANSA has not answered the question. The question relates to the fact that IARC had found a weak causal link between mobile phone usage and glioma and acoustic neuroma. This implies that because mobile phones are supposed to be safe and because they are below the thermal threshold, there must therefore be a non-thermal factor which our standards do not consider. It should also not come as a surprise to ARPANSA that scientists such as N.P. Singh, J Philips and H. Lai found double stranded DNA breaks when cells are exposed to regular cell phone emissions for 2 hours or more.

b. Please justify the grounds for ignoring this finding?

[ARPANSA's response]
ARPANSA welcomes the IARC decision and considers the current advice, including ARPANSA advice on practical ways in which people can reduce their exposure to RF fields produced by wireless telephones, is consistent with the IARC classification. The Expert Panel set up by ARPANSA to assess the scientific literature on RF will also consider the evidence mentioned in the IARC report.

[My Commentary]
I look forward to ARPANSA's comments on their website to the recently released IARC monograph (April 2013) that re-iterates the class 2B classification. The fact that the IARC was able to come to this conclusion is particularly important because the IARC has a reputation for being extremely difficult to convince before they conclude that anything is a carcinogen. It is also important to note that the IARC rarely downgrades a classification. "*Positive associations have been observed between exposure to radiofrequency radiation from wireless phones and glioma and acoustic neuroma*" (IARC Monograph Non-ionizing Radiation, Part 2: p.421)." The word "positive association" is certainly far more significant than the "possible association" that ARPANSA uses to down play the seriousness of this issue in their response above to point a.

ARPANSA Mobile fact sheet 13 includes details of the Interphone Study initial report which showed "analysis of all the brain tumour results has suggested no overall risk for moderate mobile phone use by adults for up to 10 years". It appears that ARPANSA has selectively taken (cherry picked) statements to validate its Standards and Fact Sheet position statements and ignored what is clearly evidence to the contrary. Moderate usage in the interphone study would be classified as users who hardly use the phone and are NOT representative of the average user today.

Question 7: Why didn't the fact sheet mention that brain tumour increases were found for heavy users at the time the study was conducted and that heavy users would be classified as normal users by today's standards?

[ARPANSA's response]
ARPANSA's fact sheet does mention the possible association between 'heavy' mobile phone use and glioma and acoustic neuroma (specifically "The pooled analyses suggested the possibility of an increased risk of glioma and acoustic neuroma in the group representing individuals with the highest cumulative call time"). The reference to

'heavy; use in the Interphone study relates to the highest decile of cumulative call time amongst the subjects recruited in the study.

[My Commentary]
My concern above was not answered. There was an "and" in my statement as to why there is no mention that heaviest users are normal users by today's standards. This is a case where choice of words creates a perception of safety for normal users. The perception is that only heavy users have a chance to get cancer while moderate usage is safe. The reality is heaviest users by definition were people who used the phone at least 30 minutes a day. This is normal usage by today's standards. "Moderate usage" as defined in the study are people who hardly ever use the phone. Using labels without fully qualifying them is misleading and dangerous. Even ARPANSA's answer reflects poor judgement as it relates to the study without putting today's average usage in context.

Measurement of SAR has some serious deficiencies. Firstly it is based on a human model that does not represent the majority of humans. It also has loopholes by not specifying the distance at which SAR must be measured (some providers are measuring at approximately 1 inch from the head.)

Question 8: Does ARPANSA disagree with the above statement and if so why? Please direct me to the page in our RF Standard which explains measurements of SAR must be performed at a set distance.

[ARPANSA's response]
The ARPANSA RF standard specifies limits of exposure which at certain frequency ranges are expressed in terms of the SAR. The derivation of the SAR limits in the Standards are explained in the Rationale section (page 43). It is not the purpose of the ARPANSA RF Standard to explain the measurement of SAR. The methodology of SAR measurements is explained in other international Standards, for example:

> IEC 62209-2 Human exposure to radiofrequency fields from hand-held and body mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range from 30Mhz to 6 Ghz).

[My Commentary]
Now if this is not a copout and avoidance of answering a question I don't know what is! I am challenging the validity of the tests performed not what the scope of our standards cover. I am challenging the whole basis of the tests and so they avoid answering the question. Is it too hard or do they feel they do not need to justify anything to the public?

In regards to measurement of SAR there are no known recipes for fluids that are representative of body tissue at all frequencies. As such, different tissue simulant fluids are required for different frequencies (e.g., 900 MHz for GSM 900 and 1800 MHz for 1800 products). The brain simulant must be calibrated to ensure that the permittivity and conductivity are correct for the frequency being tested. Fluids are often made from a mixture of distilled water, sugar, and salt. Some frequencies, however, require other chemicals to obtain the required properties. Source: http://www.ce-mag.com/archive/03/01/miller.html

Question 9: How can ARPANSA give long term health assurances to the public when –

a. Testing does not appear to be biologically based or representative of the majority of people?
b. It is a simulation using fluids that represent the body's tissues conductivity and thermal properties only. It does not contain real cells nor does it measure the impact on cell wall properties or cellular internal processes.
c. How does ARPANSA provide assurances that biological damage is not occurring when a person is exposed to microwaves at or below what the guidelines consider safe when there are no biologically based tests conducted to validate this?

[ARPANSA's response]
As indicated above the RF Standard is an exposure standard and not a measurement standard. You may wish to refer to the reference provided above in the Question 8 (IEC 62209-2) for details on the methodology of SAR testing.

[My Commentary]
ARPANSA again has completely avoided answering the question. The relevance of SAR is for providing protection against thermal damage only and so supports our RF standards in this regard. Our RF Standards are not biologically based. If they were, ARPANSA should have had no trouble answering these questions. The science used to develop our standards appears to be constrained and short sighted.

d. Given that SAR and RMS Electromagnetic fields from a transmitting device are only measured for a period averaged over 6 minutes (i.e. RF frequencies between 100KHz to 6GHz for measurement of SAR and 100KHz to 10GHz for RMS E&M Fields) - How do you verify safety to chronic long term exposures?

[ARPANSA's response]
The averaging time specified for the measurement must be the same as, or shorter than, time scales associated with the relevant established injury process. In the event where a potential harmful effect is not clearly understood, a conservative approach may be taken through the adoption of the shortest practical measurement averaging time where the averaging time chosen is likely to be shorter than the time constant associated with the injury process. For frequencies below 10 Ghz where heat stress is the established injury process a measurement averaging time of around six minutes is chosen as adequate. Measurement averaging consideration are described in detail in the ARPANSA website at http://www.arpansa.gov.au/Publications/Codes/mw_averaging.cfm

[My Commentary]
Here they are talking about measurements but, their previous answer indicated that our standard is not a measurement standard……Anyway back to the topic, ARPANSA says "Measurement must be the same as, or shorter than, time scales associated with the relevant established injury process." This is reasonable for an injury inflicted by acute thermal interactions. But what about cancer, dementia, infertility and a host of other disease states that have been attributed to low level RF exposures and occur over prolonged periods of time? Nobody is testing for 20 to 30 years. By limiting testing time, constraining the types of tests conducted and completely ignoring non thermal interactions that may have health effects, ARPANSA can rightfully say the standards provide lifetime protection but this is most definitely limited to acute thermal damage only!

e. What consideration is made for children whose bodies are smaller and so SAR is likely to be higher?

[ARPANSA's response]
Research in this area has shown that the determination of age-related changes in energy absorption in the brain from RF EME exposure depend critically on the assumptions made in specifying the analytical models of adults and children. There are age-dependent changes in the electrical properties of tissue that influence the penetration and absorption of RF EME. The SAR limits of the ARPANSA RF Standard are applicable to all individuals of different sizes and tissue properties, including children.

[My Commentary]
The response above is an example of where I have to question the expertise of the people at ARPANSA when they make such statements, because the second sentence contradicts the first. How can the SAR limits of ARPANSA's RF standard be applicable to all individuals when we take the following into consideration?
"Due to the closer proximity of the phone to the brain of children compared with adults, the average exposure from use of the same mobile phone is higher by a factor of 2 in a child's brain and higher by a factor of 10 in the bone marrow of the skull." (IARC Monograph Non-ionizing Radiation, Part 2: p. 408)
"The SAR results are compared with the available international recommendations. It is shown that under similar conditions, the 1g-SAR calculated for children is higher than that for the adults. When using the 10-year old child

model, SAR values higher than 60% than those for adults are obtained."
Source:http://www.ncbi.nlm.nih.gov/pubmed/17178592

What this means is that if a mobile phone is close to the SAR limit and so deemed safe by our Standards, a child using said phone is likely to push them over the limit because the RF Standards are based on an adult male not a child. Why would mobile phone usage by children have otherwise been banned in Belgium and strongly discouraged by the French Government?

f. Where is the data that adequately covers typical home scenarios where occupants are exposed to RF from multiple sources simultaneously such as mobile/smart phones, cordless digital phones, digital baby monitors, smart meters, mobile phone towers, AM and FM radio waves, wireless routers, computers and other blue tooth/wireless devices?

[ARPANSA's response]
There have been various studies that have measured RF exposure from multiple sources in domestic environments. The former Australia Centre of Radiofrequency Bio-effects Research performed such a study and results are available at http://acrbr.org.au/Research/ACRBR_Devices_In_Homes_Final_Report.pdf

[My Commentary]
Disregarding for the moment the fact that ACRBR received most of its funding from the Telecommunications industry (AMTA) and now as an organisation is defunct, this report was released before the rollout of smart meters in Victoria. This report, like the EMC report, only looks at emission levels with respect to the RF Standard. When the Standard is broken, because it only considers thermal effects and is far too simple to cover the complexities of pulsed emission effects on cells and biological process, these reports are therefore meaningless when it comes to long term health and safety assurances.

The Bioinitiative report release in (2007) reviewed more than 2000 papers that showed effects and the more recent updated version of the same report in 2012 reviewed a further 1800 papers showing effects that have biological health implications.

Question 10: Does ARPANSA engage in studies itself to prove or disprove findings made by independently funded and conducted research or does your organisation simply sit on the fence and act as passive observers waiting for advisement from International bodies such as WHO, IEEE or ICNIRP ?

[ARPANSA's response]
ARPANSA is aware of the 2012 Bioinitiative Report and the views presented by Dr Cherry at the Australian Senate Inquiry into Electromagnetic Radiation. Our view is that the statements made in regards to the evidence of harm from lo-level exposures to RF fields are not consistent with the expert opinions of national and international bodies such as the International Commission for Non-Ionizing Radiation Protection (ICNIRP), The World Health Organization, the European Health Risk Assessment Network on Electromagnetic Fields Exposures (EFHRAN), or most recently, the 2012 report of Independent Advisory Group on Non-ionising Radiation (AGNIR) of the UK Health Protect Agency.

ARPANSA does not conduct studies since it is more appropriate for studies to be conducted by tertiary institutions and research centre. ARPANSA is actively involved in the WHO International Electromagnetic Fields Project through its role as a WHO Collaborating Centre for Radiation Protection

[My Commentary]
So if we assume that all agencies around the world that are collaborating with the WHO are like ARPANSA, that is they do not actually do any research, how are things ever going to change when it comes to recognition of non-thermal effects? All agencies appear to be working collectively to support one another in defending the current (incorrect) assumption that microwaves can only cause harm through thermal effects. It would appear we have expert opinions being made by people who are not actively researching EMR, particularly non-thermal interactions and its potential effects on ourselves and the environment.

It should be noted that the WHO's position on RF EMR has not been finalised yet and is an ongoing process. Additionally, if the NHMRC's research won't be complete until 2017, how can ARPANSA make statements NOW on the safety of RF from smart meters?

Question 11: The Standards in several places provide examples where some health impacts were noted but in nearly all cases were indifferently brushed aside by saying more studies are needed.

a. How many are needed before there is consensus?

[ARPANSA's response]
The Standard considered all of the research that was available at the time however there was no established data for bio-effects below the limits that could be used for setting the levels of basic restrictions

[My Commentary]
"available at the time" which was 1998 – 2001. I would hardly say this is current. There are plenty of recent research papers that show effects below the thermal threshold that has useable data that could be considered for setting limits.

b. Who is doing these studies? ARPANSA?

[ARPANSA's response]
There is an international effort lead by the WHO International EMF project to assess the health and environmental effects of exposure to electromagnetic fields. As mentioned earlier, ARPANSA supports the Project in its role as a WHO Collaborating Centre for Radiation Protection. WHO published a research agenda for RF fields in 2010 (http://whqlibdoc.who.int/publications/2010/9789241599948_eng.pdf) which identified gaps in the knowledge for future research.

[My Commentary]
So if gaps have been identified in the knowledge of RF and there is a need for further research why not apply a precautionary approach in Victoria especially when non wireless options were available and were cheaper (based on pilot study – DPI)? Of course ARPANSA does not regulate the standards, ACMA purportedly does but I will demonstrate in my next blog that this is just a furphy.

c. When can we expect the RF standards to be updated to take into account the latest (independent) scientific findings?

[ARPANSA's response]
As mentioned above, ARPANSA has established an Expert Panel to assess the scientific literature to determine whether there are any significant changes to the science underpinning the Standard and whether it continues to provide adequate protection.

[My Commentary]
I look forward to the report from the Expert Panel which I understand from my sources that it has been sent back several times for rework. I suspect it will be significantly watered down to protect the industry and the government but will probably provide a weak statement to appease people such as myself that precautions could be considered based on the IARC classification that RF is a group 2B carcinogen. I also expect that they will advise that there is no need at this time to change the Standards because 12 years of additional evidence since the last publication of our current standards are still insufficient to provide a causal link. I do hope the Expert Panel is indemnified against class action and legal claims in the future particularly as many leading independent scientists have spoken out against the validity of the ICNIRP RF standards, which our standards are based on.

d. Will a review of these studies be performed without undue influence from Telecommunication giants and their agents as well as wireless manufactures to avoid conflict of interest scenarios and will it be done in a transparent manner?

[ARPANSA's response]
The Expert Panel is comprised of Australian academics and ARPANSA staff. Industry is not involved in the process in any capacity.

[My Commentary]
We have no idea what studies are being looked at, why studies that show potential health effects below the thermal threshold are not worthy of consideration. There is a complete lack of transparency in the review process. There are over 3000 research papers showing effects below the thermal threshold. Are they all useless? How many of these papers have been looked at by the "Expert Panel"? Is the expert panel looking at new research papers every time they are released? Every month on the EMF-Portal (http://www.emf-portal.de/) you will find many research papers being published. More than half of them show effects at a-thermal levels and some suggest health implications.
Of course it is also important to note that ARPANSA did not provide any details on whether the Expert Panel or their staff have links with the (telecommunication or energy production) Industry, past or present.

e. Does ARPANSA take into consideration the sources of funding, potential conflicts of interest and potential industry interference when it reviews candidate studies?

[ARPANSA's response]
ARPANSA considers studies on their scientific merit. ARPANSA is aware that the industry is a significant contributor to the funding of research in this field and notes that much of the research would not be implemented if funding by industry was not available. However ARPANSA is not aware of any industry interference in the research being funded. Studies are required to disclose their sources of funding and conflicts of interest. In Australia the research into EME is funded by a $1 million dollar levy paid annually by radio communication licensees and collected by the Australian Communications and Media Authority (ACMA). The Australian research program is managed by the National Health and Medical Research Council with no involvement from the industry.

[My Commentary]
We have reports written to provide a critical review of the Bioinitiative Report 2007 (ACRBR) by people who worked for the Industry who are certainly not going to support a view that is going to be very damaging to the industry they represent. I have provided evidence of industry interference in my critical review document that I sent last year involving Motorola and the US Air force. I think it is extremely naïve of ARPANSA to think that industry funded research is not going to be inherently biased. A number of large epidemiological studies such as the INTERPHONE study and Danish Cohort study on mobile phones were funded by the industry and we saw clear failures and design flaws that some people have suggested were deliberate to reduce or hide the effects long term mobile phones have on brain cancers. An example includes having cordless phone users as part of the control subjects, constraining the types of user to exclude the corporate users who would be considered the heaviest users etc.

f. Where can I find the independent studies and reports that validate your claim that the standards provide protection against long term chronic exposures?

[ARPANSA's response]
The research into RF and health has been extensively reviewed by various health authorities including the International Commission for Non-Ionizing Radiation Protection (ICNIRP), the European Union Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR), the European Health Risk Assessment Network on Electromagnetic Fields Exposure (EFHRAN). The most recent review of RF and health by the Health Protection Agency in the United Kingdom concluded that "although substantial research has been conducted in this area, there is no convincing evidence that RF field exposure below guideline levels causes health effects in adults or children". (www.hpa.org.uk/webc/hpawebfile/hpaweb_c/1317133827077)

[My Commentary]
See my response to question 10 as it applies here also. ARPANSA has cherry picked organisations that are supportive of their stance. I do not see any mention of the International Electro-Magnetic Fields Alliance (IEMFA) which is an independent and global body. What about the Council of Europe? I doubt that either of these

organisations would agree with ARPANSA's statement that "there is no convincing evidence that RF Field exposure below guideline levels cause health effects."

When there is a reasonable chance that wireless could be carcinogenic then deployment of such technology in an uncontrolled manner should be stopped until it is proven to be safe. IARC classified Wireless RF EMR as a Group 2B carcinogen "i.e." a **causal association is considered credible**, but when chance, bias or confounding cannot be ruled out with reasonable confidence."

ARPANSA released the following statement "ARPANSA will consider the implications of the IARC decision and the underlying scientific evidence and, if necessary, review the current standard and other means of protecting the public."

Question 12: I have yet to observe any tangible findings or recommendations from ARPANSA in relation to what this announcement has on our 11 year old RF Standards and neither have I seen any new suggested protective measures for the public.

a. What actions has ARPANSA taken since this announcement almost 2 years ago? Apart from releasing some commentary along with the above statement and a fact sheet 14 which irresponsibly claims "***evidence suggests that the radiofrequency (RF) electromagnetic energy (EME) emissions of mobile phone handsets are not harmful to the user***"?

[ARPANSA's response]
As mentioned earlier ARPANSA has established an Expert Panel to assess the scientific literature to determine whether there are significant changes to the science underpinning the Standard and whether it continues to provide adequate protection.

[My Commentary]
If the claim in fact sheet 14 "*evidence suggests that the radiofrequency (RF) electromagnetic energy (EME) emissions of mobile phone handsets are not harmful to the user*" is the result of advice from the Expert Panel then we are really in trouble. It is important to recognise that such a statement is not in alignment with IARC's classification that RF is a possible carcinogen especially when this fact sheet was written more recently than the IARC announcement. Perhaps ARPANSA used the latest Danish Cohort study to support their claim. Of course the problems we are faced with are that this study and the INTERPHONE study had serious design flaws http://www.the-scientist.com/?articles.view/articleNo/34518/title/Opinion--Scientific-Peer-Review-in-Crisis/.
What is worse is these poorly designed "peer reviewed" research are then used by Government bodies to claim there are no health issues linked to Mobile Phones. I wonder if the Expert Panel takes this into consideration when they review research materials?
The fact that over 200 people that have registered similar health complaints since smart meters rolled out with the stopsmartmeters association it would suggest that adequate protection is not provided by our Standards and what is worse is ARPANSA and the Expert Panel refuses to investigate this issue which is shameful.

b. Despite the categorisation by the IARC that wireless is a Group 2B Carcinogen your organisation has created more recent fact sheets on mobile phones safety that do not explicitly mention this announcement and still suggest there is no concern. Why?

[ARPANSA's response]
Both the "EME Series No, 5: About mobile phones" (http://www.arpansa.gov.au/pubs/eme/fact5.pdf) and the "Mobile telephones and health effects" (http://ww.arpansa.gov.au/mobilephones/index.cfm) fact sheets mention the IARC classification. The IARC classification is also mentioned in the fact sheet "EME Series No. 1: Electromagnetic energy and its effects" (http://www.arpansa.gov.au/pubs/eme/fact1.pdf) which is not on mobile phones per se.

[My Commentary]
My issue was not about past publications. ARPANSA did not read the question properly. My issue is with Mobile Phone Fact Sheet 14 that was created after the IARC announcement. It claims that *"emissions of mobile phone handsets are not harmful to the user"* and does not mention the IARC classification. This is an important oversight that needs to be rectified. People need to be given clear and concise facts so that they can make an informed decision on the usage of wireless devices like mobile phones. By having some fact sheets that state there is no harm and then having others that say there may be a risk is confusing, misleading and irresponsible. It is also important to realise that one of the fact sheets referenced above relates to general RF (not just mobiles) and so it is a tacit acknowledgement that Smart Meters also are a possible carcinogen. ARPANSA provides advice on how to minimise exposure but how do we achieve this when a wireless transmitter is forced on Victorians without consent and more often than not it is situated near bedrooms or main living areas? How do we protect ourselves in this situation?

Question 13: India's RF guidelines were originally adopted based on the ICNIRP 1998 Guidelines like Australia. However recently (September 2012) India revised their standards to be 90% lower than what they had been previously.

a. Would you care to explain why they would make such a deep cut if the ICNIRP guidelines are considered safe?
b. Would you also care to explain why countries like Russia and China have RF standards far more conservative than our own?

[ARPANSA's response]
ARPANSA cannot comment on the government policies of other countries.

[My Commentary]
Well I would certainly want to know why other countries have decided to have lower emissions. It suggests that world opinion IS NOT consistent nor is there global agreement on the safety of the ICNIRP standards especially when one of those countries who originally adopted the same ICNIRP standards as Australia decided to reduce their standards by 90%! Perhaps they know something our supposed Expert Panel does not?! Is ARPANSA's Expert Panel investigating this?

It would appear that wireless industry is self-regulated without any real oversight being provided by Government bodies such as ACMA. All they need to do is test their devices against the ARPANSA standard for 6 minute period and show that they are lower than the guidelines to be able to claim their devices are safe.

Question 14: Who actually conducts these tests to confirm the devices are within the limits?

[ARPANSA's response]
Wireless devices are regulated by ACMA so any questions regarding compliance should be directed to ACMA.

[My Commentary]
We are lead to believe that the ACMA regulates the RF standards. Unfortunately it appears they do not nor do they follow a precautionary principle as I will show in my next blog.

Question 15: ARPANSA provides a complaints register for people claiming to be sensitive or suffering from nearby microwave emissions. This register allows a person to raise a complaint indicating what they think the source of their complaint is and what symptoms they are experiencing.

a. What does ARPANSA do with the complaints?
b. Are the complaints shared with other departments including the health department?
c. Are there follow up actions taken to consult with those who suffer? I haven't been contacted yet except by letter to acknowledge the receipt of my complaint and most recently in correspondence to a previous letter to Dr Larsson (CEO) suggesting I seek medical advice.

[ARPANSA's response]
ARPANSA does not investigate or attempt resolve individual complaints.

[My Commentary]
At least they are honest. I wonder if they would investigate group complaints? If they do not investigate individual complaints, shouldn't they refer said individuals to the appropriate department that is able to do this? It appears unethical not to have an appropriate follow-up system in place.

d. What is the point of the complaint register if there is no formal investigation of the matter? Are we just being used as measure for statistical analysis and that's all?

[ARPANSA's response]
Information could be used to help identify future areas of research into the effects of electromagnetic fields on people and the environment

[My Commentary]
So we are made to suffer in the meantime until someone decides to take this information and do some research. "Could be used" does not demonstrate any commitment. Our complaints are therefore only used for statistical purposes. Since the statistics of those complaining of sensitivity are likely to be very low as most people are not even aware of the register it is probably safe to assume nothing is going to happen. This of course is outrageous as people are left to suffer without any hope of support or protection.

e. How can you assure the public that the basic restrictions provide adequate protection when people such as myself are suffering very similar health ailments due to exposure levels 1000's to tens of 1000's or more times below the ICNIRP guidelines, that scientists have demonstrated through epidemiological and in vitro/in vivo studies that biological effects with potential health implications do occur below reference levels and in some studies genotoxic events were found?

[ARPANSA's response]
Health authorities around the world, including ARPANSA and the World Health Organization (WHO), have examined the scientific evidence regarding possible health effects and have concluded that the weight of evidence does not demonstrate the existence of health effects below the current exposure limits. The health implications of biological effects below limits specified in the RF Standard are not known. Accordingly, there is no established date for bio-effects below the limits that could be used for setting the levels of basic restrictions and reference levels. Nevertheless ARPANSA has established an Expert Panel to assess the scientific literature to determine whether there are any significant changes to the science underpinning the Standard and whether it continues to provide adequate protection.

[My Commentary]
The first sentence in the response suggests ARPANSA is a health authority so why aren't they investigating these health issues? Of course I do not believe that it was their intention. The problem I have with the statement about "the weight of evidence does not demonstrate existence of health effects" is that if ARPANSA's, the DPI's and Victorian Health Department's treatment of my EMR sensitivity is a reflection of how all these health organisations behaved when people complain of EMR induced health problems it is a little wonder that the prevailing view is there is no evidence of harm because they are ignoring it. If one of the organisations mentioned above had taken active steps to investigate mine and many others' claims of sensitivity and proved that it was not related to EMR then it would be a different story. If I was the only one making this claim then it might be a little harder to justify having resources directed to verify a single person. But I certainly am not the only one.
The next problem of course is they say there is no established data that could be used for setting limits. That is because no-one wants to investigate claims of health effects and the other problem is it is very likely that each person has a different threshold (so we have inconsistent data). That is why Dr Cherry's suggestion that the Lowest Observed Adverse Effect Level, (LOAEL) be used is a very sensible suggestion and would have protected everyone, not just the majority.

The Expert Panel will only look at scientific literature and not investigate people claiming health issues which are a very blinkered way of validating the relevance of our standards.

Question 16: ARPANSA's mission statement (on page 4 of the pdf for the RF standard, just before the Foreword), states that the 'mission of ARPANSA is to provide the scientific expertise and infrastructure necessary... to protect the health and safety of people, and to protect the environment, from the harmful effects of radiation'.

a. Which publication in the Radiation Publication Series provides RF radiation standards for the environment, such as for plants, trees, bees, birds and amphibians?
b. What is ARPANSA doing by way of researching or monitoring of research into the effects of radiation on the environment such as from smart meter rollouts in Victoria?

[ARPANSA's response]
Much of the research that ARPANSA has examined in order to provide advice has been performed on animals and cells (often extracted from plants). Smart meters are a new form of technology and, as stated above, ARPANSA is currently completing a review of the scientific literature published since the RF standard was prepared and will undertake a review of our advice in the light of any significant findings, including, if necessary, the Standard itself. ARPANSA continue to examine new scientific publications as they appear including those relating to potential health effects from smart meters.

[My Commentary]
Unfortunately there is very little or no scientific literature that I know of that researches the potential health impacts of smart meters. I would also question whether reports from citizens complaining of health issues will be considered? I suspect not as no one wants to investigate these cases, at least in Australia, and so they won't appear in any scientific journals. I would also question why a smart grid based on wireless is allowed to be rolled out when there have been no studies performed to verify whether such an action is safe. It would suggest that this is a big experiment and the tragic thing is we don't even have a say. I would classify this as significant impingement on my rights.

There has been a shift in perception on the health and safety of smart meter globally. A number of countries have announced opt out programs such as in Canada (in Quebec), in the USA including California (PG&E, San Diego Gas and Electric, and Southern California Edison consumers have all now won this right), Maine, Vermont, Louisiana, Michigan, and Connecticut. Smart meters were made voluntary in the Netherlands in 2009 and in the UK earlier this year. A number of countries and/or states within foreign countries (i.e. UK and US) created moratoriums on smart meter rollout programs including the provision of opt-out clauses for previously mandated rollouts because of potential health concerns.

Question 17: Has ARPANSA reviewed these potential health issues? And -

a. Why has ARPANSA not made any statements relating to these overseas actions on their website?

[ARPANSA's response]
ARPANSA does not regulate smart meters and cannot comment on the policies of other responsible jurisdictions.

[My Commentary]
Yet ARPANSA has put its comments on their website relating to International EMR research to support their arguments and so not commenting on other jurisdiction findings reeks of hypocrisy. It would appear that ARPANSA is not impartial as one would expect from a Standard's body that has public health protection as its main goal. The question of liability should be considered when ARPANSA's RF standards are used by other agencies and Government bodies to promote smart meters as being safe when in fact there is no proof of safety.

b. Your smart meter fact sheet directs people to the Victorian government website which claims that smart meter emissions are below stated RF guidelines and that "*there is no substantive evidence to*

suggest that exposure to radiofrequency radiation such as from Smart Meters can increase the risk of chronic health effects" so how do you explain my symptoms and those that I provided with the included letter which would most definitely be classified as "chronic health effects" that only have developed since the rollout of smart meters in our street?

[ARPANSA did not respond]

[My Commentary]
ARPANSA did not respond to this question and did not even include the question in their response sheet. It was present in my original question sheet that I sent to them. I guess it was too hard and they don't have an answer. The fact that people are suffering chronic health effects after the rollout considerably undermines the supposed protection our standards are claimed to offer and flies in the face of statements made by the DPI, Chief Health Officer and the Energy Minister that smart meters are safe. I will be writing extensively in a future blog on the behaviour of these groups and provide evidence of reciprocal buck passing which is shameful.

Question 18: From your Smart Meter Fact Sheet – "*Victoria's Chief Health Officer has endorsed the advice of the Committee that, 'there is no substantive evidence to suggest that exposure to radiofrequency radiation such as from Smart Meters can increase the risk of chronic health effects, such as cancer'*.

Victoria's Chief Health Officer has also endorsed the advice of the Australian Radiation Protection and Nuclear Safety Agency that "*the overall exposure from Smart Meters is very low and well below exposure limits, even when a number of devices are communicating simultaneously*".

a. Does the Victorian Chief Health Officer have credentials in non-ionising radiation to be making such an endorsement?
b. If you were going to respond that she has been advised by the Radiation Advisory Committee then you would be aware that there is only one member on that committee who has a background in non-ionising radiation, i.e. Dr Ken Joiner who also happened to previously work for Motorola. Does it not concern you that industry interests have potentially infiltrated positions of trust on advisory committees?
c. Please provide a definition of "no substantive evidence"

[ARPANSA's response]
ARPANSA does not regulate smart meters and cannot comment on the policies of other government departments – state, territory or Commonwealth.

(c) The criteria that have to be satisfied for substantiating scientific evidence are:
The publication of research results in a reputable internal scientific journal that includes peer review by appropriately qualified scientists and academics. This ensures that research conforms to high standards of scientific practice and that conclusions may reasonably be drawn from the work undertaken which take into account relevant considerations; and
The independent verification of research results. If a research result cannot be repeated by other independent researchers, doubts are raised about the original finding.
In ARPANSA's view, "no substantive evidence" would mean the absence of the two conditions mentioned above.

[My Commentary]
The answer to question 18 a) is NO, Dr Rosemary Lester, who is Victoria's Chief Health Officer, does not have the necessary credentials to be making any comments/endorsements on whether RF EMR from smart meters are safe or not.
In regards to ARPANSA's definition of substantial evidence I think the following should be appended to the definition:

- Number of studies performed
- Quality of the studies performed including any potential conflict of interest by the study authors

If we look at studies that show effects that include DNA breaks then I think you will find that a) they were peer reviewed and accepted and b) it has been repeated several times. So one could therefore conclude they provide substantial evidence of potential harm. Of course the real issue has been the lack of consistency with subsequent studies in producing the same results. It is split almost 50/50. However if we disregard industry funded research because of inherent biases you would see this change to something close to a 70/30 split in favour of Microwaves causing damage to DNA.

Question 19: There appears to be a serious lack of information on the ARPANSA website on smart meters. Instead your very thin fact sheet directs people to look at a Victorian Government DPI website to get further facts. I would like to know -

a. Since when has the Victorian Government become a recognised authority on smart meter health and safety, particularly in regards to wireless emissions?
b. Why isn't ARPANSA taking a lead role? When the DPI is challenged about safety of wireless emissions against the RF standards they refer people to ARPANSA. Reciprocal buck-passing can only mean that no agency is taking responsibility and that the issue of whether wireless smart meters have the potential for adverse health consequences is simply being ignored. This is the very issue which has been recently successfully represented in the supreme court in Maine, USA, by concerned citizens (see: www.mainecoalitiontostopsmartmeters.org/2013/01/maine-supreme-court-proceedings-now-online/)

[ARPANSA's response]
ARPANSA does not regulate smart meters and cannot comment on the policies of other government departments – state, territory or Commonwealth.

The Commonwealth Government has a role in providing scientific advice on radiation protection an in facility uniformity of health standards through Australia. The state and territory governments, in turn are generally responsible for the planning and regulation of infrastructure, including the provision of electrical power. Generally, the assessment of environmental impact of electrical infrastructure, including possible health effects, and decisions about whether installations are optional, is undertaken by state and territory authorities.

[My Commentary]
"…cannot comment on the policies of other government departments – state, territory or Commonwealth". Seriously??!! ARPANSA has put links to another Governments website on smart meters. Surely in order to protect oneself from potential litigation ARPANSA would need to be concerned with what they are linking to and by doing so implies that ARPANSA supports the Victorian Government's rollout and statements on smart meter emission safety. ARPANSA cannot absolve itself of its responsibility considering the DPI, Power Utilities, the Energy Minister and the Chief Health Officer are all quoting safety against ARPANSA's RF Standards.

Question 20: From our RF standards "*A working group was established under the auspices of ARPANSA's Radiation Health Committee (RHC) to draft a set of maximum exposure levels for radiofrequency fields in the frequency range 3 kHz to 300 GHz. In choosing the members of the working group, ARPANSA consulted widely with a range of relevant groups to achieve a spread of relevant interests and expertise. The working group included expertise on electromagnetic radiation bio-effects, dosimetry and measurement techniques, medical expertise on epidemiology and occupational health and safety aspects, and knowledge of technical standards*."

a. Did this working group consist of people who represented the industry and their interests directly or indirectly?

[ARPANSA's response]
In choosing the members of the working group, ARPANSA consulted widely with a range of relevant groups to achieve a spread of relevant interests and expertise. The working group included expertise on electromagnetic radiation bio-effects, dosimetry and measurement techniques, medical expertise on epidemiological and

occupational health and safety aspects, and knowledge of technical standards. Community, industry and union representation was included.

[My Commentary]
What percentage of the working group is sourced from the industry?

b. Can you provide me with a list of the working group members and their associations please?

[ARPANSA's response]
A list of the members of the Working Group is provided on page 123 of the Standard (http://www.arpansa.gov.au/pubs/rps/rps3.pdf)

[My Commentary]
I did not check the background of all members of the Working Group but there are certainly a lot of players in key positions who have worked for Telecommunication giants in the past. Of course it is important to understand that this does not necessarily mean they are inherently biased because often experience can only be gained by working with companies that actual have the equipment and the labs to perform research. Still it would have been preferable to see more people in the working group whose independence of the industry is not questionable.

Dr Bruce Hocking previously worked for Telstra (medical director)
Dr Ken Joyner previously worked for Motorola
Dr Andrew Wood involved with Telstra Laboratories
Dr Vitas Anderson in the past was senior researcher at Telstra Research Laboratories

Independence and objectivity are key ingredients of scientific credibility. Credibility, in turn, is essential to the utility of scientific information in socio-political processes. Biased research could confuse public discussion of health issues and policy options. Conflicts of interest can be viewed as disqualifying factors in scientific papers and research with some academics reaching the conclusion that industry-funded science and projects/programs are inherently biased. The recognition of potential conflicts of interest is important, as this bias exists outside the formal research process. Authors of scientific reviews may search and interpret the literature selectively, in ways consistent with their personal and professional interests. In that regard, and reflecting on the personal and professional interests and affiliations of some of the members on the Radiation Health and Safety Advisory Council as well as those who participated in the generation of the EMC report on smart meter safety, information that is publicly available on their background and industry connections as follows:

EMC Technologies Report
Chris Zombolas (a co-author of the EMC Technologies report with Prof Andrew Wood) can be traced back to Telstra, involved in many companies including Comtest Laboratories (again from Telstra) and EMC Engineering where he worked with the current Jemena's media and communications director.

Question 21: Would ARPANSA confidently attest to the scientific independence and unbiased findings/claims of its advisors if there were to be a public inquiry tracing back their links to the industry, personal businesses, sources of funding and affiliations?

[ARPANSA's response]
We refer to our response to Question 20 above.

[My Commentary]
I have stated the obvious in my synopsis of ARPANSA's Advisor council and the EMC report above so I won't repeat myself again.

Question 22: Why didn't ARPANSA find it necessary to have advisors who are neurosurgeons, physiologists, epidemiologists, and physicians, from non-industry related organizations, preferably from independent hospitals and non-industry or non-government funded medical research?

[ARPANSA's response]
We refer to our response to Question 20 above.

[My Commentary]
See my response to questions 20 and 21 above.