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May 11, 2018

VIA HAND DELIVERY

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Alan V. Schmukler v. PPL Electric Utilities Corporation
Docket No. C-2017-2621285

Dear Secretary Chiavetta:

Enclosed for filing is the Reply Brief of PPL Electric Utilities Corporation in the above-referenced proceeding. Copies will be provided as indicated on the Certificate of Service.

Respectfully submitted,

A handwritten signature in cursive script that reads 'Devin Ryan'. Below the signature, the name 'Devin Ryan' is printed in a standard serif font.

Devin Ryan

DTR/jl
Enclosures

cc: Honorable Elizabeth Barnes
Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

VIA E-MAIL & FIRST CLASS MAIL

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Date: May 11, 2018



Devin T. Ryan

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Alan V. Schmukler,	:	
	:	
Complainant,	:	
	:	
v.	:	Docket No. C-2017-2621285
	:	
PPL Electric Utilities Corporation,	:	
	:	
Respondent.	:	

**REPLY BRIEF OF
PPL ELECTRIC UTILITIES CORPORATION**

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I. INTRODUCTION

On September 26, 2017, PPL Electric Utilities Corporation (“PPL Electric” or the “Company”) was served with the above-captioned Formal Complaint filed by Alan V. Schumkler (“Complainant”) with the Pennsylvania Public Utility Commission (“Commission”). The Complainant contests PPL Electric’s planned installation of a new automated metering infrastructure (“AMI”) meter at his property, 199 Strawberry Street, Leola, Pennsylvania. The Complainant also requests that PPL Electric remove the new AMI meter installed on his neighbor’s property, 197 Strawberry Street, Leola, Pennsylvania.

On April 26, 2018, PPL Electric received a copy of the Complainant’s Main Brief via email. On April 27, 2018, the Company filed its Main Brief, in accordance with the Briefing Order.

As explained in PPL Electric’s Main Brief, the Complaint should be denied in its entirety and with prejudice because the Complainant has failed to sustain his burden of proof that installing the new AMI meter would violate the Public Utility Code or any Commission regulation or order. The Company is legally required to install the new AMI meters for all customers, and installing the new AMI meter would not constitute unsafe or unreasonable service in violation of 66 Pa. C.S. § 1501.

Herein, PPL Electric submits its Reply Brief, which is limited to addressing any arguments or issues raised by the Complainant’s Main Brief that were not previously addressed by the Company.

II. SUMMARY OF ARGUMENT

The Complainant’s arguments in his Main Brief should be rejected. First, the Complainant’s Main Brief introduces and relies upon, for the first time, many new documents,

excerpts of documents, and alleged facts that are not a part of the record. The Complainant, who is a former hearing examiner, has denied PPL Electric due process by waiting until his Main Brief to present these materials. The Complainant even tries to reintroduce and rely upon exhibits that were specifically excluded by the ALJ. The Complainant also never demonstrates any good cause or change in facts or law that would justify the submittal of this extra-record evidence. Therefore, these extra-record materials cannot support any findings in this case.

Second, the Complainant mischaracterizes the record and unreasonably relies upon certain exhibits and testimony. For example, PPL Electric witness Larson never acknowledged that the new AMI meter had any safety design flaws. To the contrary, Mr. Larson's testimony demonstrated that the new AMI meter is safe and better equipped to withstand a surge than the analog meter. Further, the Complainant cites the testimony of his witness, Mr. Bathgate, to claim that the new AMI meter is not compliant with Federal Communications Commission ("FCC") rules, even though Mr. Bathgate later conceded that he was referring to a voluntary certification. Moreover, the Complainant attempts in his Main Brief to critique the qualifications of PPL Electric's expert witnesses, despite his failure to object to the witnesses being certified as experts in their areas of expertise. Additionally, to try to rebut the expert witnesses' testimony, the Complainant heavily relies on his rebuttal testimony (*i.e.*, Complainant's Exhibit 27), which mostly consists of hearsay and, therefore, should not be relied upon to make any findings of fact.

Third, the Complainant avers that he has a disability under the Americans with Disabilities Act ("ADA"), 42 U.S.C. § 12132, *et seq.*, and should be granted a reasonable accommodation. The Commission, however, lacks jurisdiction to determine whether the Complainant has a disability defined by the ADA and to enforce the ADA's provisions. *See Frompovich v. PECO Energy Co.*, Docket No. C-2015-2474602, p. 43 (Order entered May 3,

2018). Moreover, there is no competent record to show that the Complainant has been medically diagnosed with a disability. Dr. Israel, the only medical expert in this case, testified that the medical record provided by the Complainant, including his four hearsay letters (three of which are from homeopaths who never actually examined the Complainant (Tr. 203)), “did not provide any useful diagnostic medical information” about his alleged disability and instead appeared to be just “reiterating information that likely was provided by the patient.” (PPL Electric Statement No. 1, p. 16, lines 1-14) The Complainant’s attempt to blame his alleged chronic insomnia on radiofrequency (“RF”) fields from his neighbor’s AMI meter is similarly devoid of support from medical records or scientific research. Dr. Israel examined scientific studies on RF fields and sleep quality. He testified that the studies found no adverse effects on sleep related to RF fields. (PPL Electric Statement No. 1, p. 11, lines 9-23) Dr. Israel’s testimony is not rebutted by any medical expert on these points.

Instead, the Complainant bases his ADA argument on his Exhibit 4. The Complainant’s use of this exhibit is particularly brazen because it was altered to exclude the relevant language showing that the Architectural and Transportation Barriers Compliance Board did not adopt ADA rules for electromagnetic sensitivity (“EHS”). When confronted with this doctoring of the exhibit at the hearing, the Complainant conceded this fatal flaw and, consequently, the exhibit was excluded from the record. (Tr. 128-29; *see* PPL Electric Motion in Limine ¶ 14)

Fourth, the Complainant relies upon irrelevant and inapplicable legal authorities in support of his requested opt-out. None of the court decisions or actions by other states cited by the Complainant controls the interpretation and effect of Pennsylvania law. Indeed, the plain language of Act 129, as well as the Commission’s orders, requires PPL Electric to install the new AMI meter.

For these reasons, and as explained in more detail below, the arguments and extra-record evidence presented in the Complainant's Main Brief should be rejected.

III. REPLY ARGUMENT

A. THE COMPLAINANT INAPPROPRIATELY ATTEMPTS TO INTRODUCE AND RELY UPON EXTRA-RECORD EVIDENCE IN HIS MAIN BRIEF

In his Main Brief, the Complainant inappropriately attempts to introduce and rely upon evidence that is not a part of the record. Much of the Complainant's 254-page¹ Main Brief consists of new documents, hyperlinks to new documents, or both, as well as arguments based on such extra-record evidence. Moreover, although the Complainant's exhibits provided hyperlinks for a handful of these documents, the documents themselves were never admitted into the record. Indeed, simply because the Complainant provided a link to a document, webpage, or video in his various exhibits or in his Main Brief does not mean such material is in the record. The Complainant attempts to cure such deficiencies for some materials by presenting the actual documents (or excerpts of those documents) for the first time in his Main Brief.

Specifically, the Complainant's Main Brief presents or mentions the following facts and materials, which are not in the record²:

1. Link to article titled "Word Health Organization, radiofrequency radiation and health - a hard nut to crack (Review" by Lennart Hardell. (Complainant's MB at 10, 42)
2. Link to "BioInitiative Conclusions" webpage that is not identical to Complainant's Exhibit 16. (Complainant's MB at 10, 85, 134)

¹ The Commission's regulations prescribe a 60-page limit for briefs, except for briefs in rate cases. *See* 52 Pa. Code § 5.501(e). The instant proceeding is not a rate case.

² A true and correct copy of the Complainant's Main Brief with the extra-record evidence and any references to such materials deleted is attached as **Appendix A**. The Company also deleted any claims that the Complainant has a disability under the ADA because, as explained in Section III.C., *infra*, the Commission has no jurisdiction over such claims. (*See* Appendix A at 8, 13, 21, 25, 27-28, 76-79, 159-60, 163, 252)

3. Copy of and link to “Brussels Declaration” that is not identical to the version provided in Complainant’s Exhibit 27. (Complainant’s MB at 11, 72-73, 75-76)
4. Video interview with Dr. David O. Carpenter. (Complainant’s MB at 12, 80)
5. “The EPA acknowledges that FCC guidelines do not protect from chronic exposure to non-ionizing radiation.” (Complainant’s MB at 22)
6. *Nation Magazine* article. (Complainant’s MB at 23, 198-205)
7. The National Toxicology Project Study and related articles. (Complainant’s MB at 24, 34-35, 217)
8. Ramazzini Study. (Complainant’s MB at 24, 34-36, 217-18)
9. Comparison of the costs and useful lives of analog meters versus smart meters. (Complainant’s MB at 25, 240)
10. Signalbooster.com article titled “What Are the Cellular Frequencies of Carriers in USA & Canada?” (Complainant’s MB at 30)
11. “Cell phones are not connected to the house wiring and so don’t generate those transients.” (Complainant’s MB at 31)
12. BioInitiative Report (2012) in its entirety.³ (Complainant’s MB at 52)
13. *Deccan Herald* article on Indian court decision. (Complainant’s MB at 57-61)
14. Barrie Trower’s video about alleged health effects of Wi-Fi. (Complainant’s MB at 61)
15. Document titled “Captured Agency: How the Federal Communications Commission Is Dominated by the Industries It Presumably Regulates” by Norm Alster. (Complainant’s MB at 65-67)
16. Letter sent by Norbert Hankin from the Radiation Protection Division of the U.S. Environmental Protection Agency to Janet Newton of The EMR Network. (Complainant’s MB at 68-70)
17. EMFacts.com article titled “Electrosensitivity in Sweden” by Olle Johannson. (Complainant’s MB at 73-74)
18. Document titled “The Medical Perspective on Environmental Sensitivities” by Margaret Sears (<http://www.aseq-ehaq-en.ca/medical-doc.html>) (Complainant’s MB at 74)
19. European Parliament webpage on resolution of April 2, 2009. (Complainant’s MB at 74)

³ An excerpt of the report was admitted as Complainant’s Exhibit 16.

20. “Brussels International Scientific Declaration on Electromagnetic Hypersensitivity and Multiple Chemical Sensitivity” in its entirety.⁴ (Complainant’s MB at 75)
21. United States Access Board webpage “Recommendations for Accommodations”. (Complainant’s MB at 77-79)
22. Article titled “Excessive Exposure to Radiofrequency Electromagnetic Fields May Cause the Development of Electrohypersensitivity” by Dr. David O. Carpenter. (Complainant’s MB at 80)
23. Article titled “Aspects of studies on the functional impairment electrohypersensitivity” by Olle Johansson. (Complainant’s MB at 80-82)
24. Article titled “Electrical Sensitivities and the Electrical Environment” by Dr. Cyril Smith. (Complainant’s MB at 82-85)
25. References and Footnotes from article about Frank Clegg, which were missing from Complainant’s Exhibit 27. (Complainant’s MB at 92-93; *see* Complainant’s Exhibit 27, p. 29)
26. Article titled “Electrosensitivity in Sweden” by Olle Johansson. (Complainant’s MB at 94-96)
27. Article titled “Cell Phone Radiation Lawsuits May Get a Boost from Italian Supreme Court Ruling” from the website of the law firm Bernstein Liebhard LLP. (Complainant’s MB at 108-10)
28. Article titled “Appeals Court Rebuffs ANA and Wireless Carriers over Cell Phone Radiation Warnings” by Wendy Davis. (Complainant’s MB at 115-16)
29. Online article titled “Letter to AT&T Chairman C. Michael Armstrong from WTR Chairman Dr. George L. Carlo” from RFSafe.com. (Complainant’s MB at 120-27)
30. Article titled “WSJ Reports Murray Cellphone Cancer Case May Cost Wireless Industry Over 1.9 Billion Dollars” by John Coates (note: the hyperlink provides a somewhat similar albeit different article titled “Lawsuits could have broad ramifications for the industry” from Sun-Sentinel.com). (Complainant’s MB at 127-33, 171-72)
31. Quoted portion of article titled “Judge rules electric co-op violated discrimination laws” from website called *Smart Meter News*. (Complainant’s MB at 161-62)

⁴ An excerpt of the document was presented on pages 4 through 7 of Exhibit 27.

32. Quoted portion of article titled “LAUSD Accommodates Teacher Who Fell Ill After Wireless Installed” from the website ElectroSmogPrevention.org. (Complainant’s MB at 162-63)
33. A document titled “Open letter to the European Economic and Social Committee (EESC)” dated October 25, 2016. (Complainant’s MB at 164)
34. “Recommendations Regarding Electromagnetic and Radiofrequency Exposure” by the American Academy of Environmental Medicine. (Complainant’s MB at 164-65)
35. “Freiburger Appeal” from the following website: <http://freiburger-appell-2012.info/en/recommendations.php?lang=EN>. (Complainant’s MB at 165)
36. “Benevento Resolution” from the International Commission for Electromagnetic Safety (ICEMS). (Complainant’s MB at 165)
37. Documents dated 2002, 2010, and 2014 by the International Commission on Non-Ionizing Radiation Protection (“ICNIRP”). (Complainant’s MB at 166)
38. Assorted online articles and blog entries about court cases. (Complainant’s MB at 168-71)
39. Article titled “Enforced Environmental Radiation Violates the Nuremberg Code” by Dr. Andrew Goldsworthy. (Complainant’s MB at 172-74)
40. Online articles about actions taken in Israel, Italy, and Russia concerning Wi-Fi. (Complainant’s MB at 175-76)
41. United States Access Board webpage “General Issues”.⁵ (Complainant’s MB at 177)
42. Job Accommodation Network webpage “Accommodation Ideas for Electromagnetic Sensitivity”. (Complainant’s MB at 177-78)
43. Abstract of article titled “Effect of mobile usage on serum melatonin levels among medical students” by Abha Shrivastava and Yogesh Saxena and hyperlink to full article. (Complainant’s MB at 184)
44. Excerpt from and link to “The Schwarzenburg Shut-Down Study” by Ekkehardt-Siegfried Altpeter, *et al.* (Complainant’s MB at 185)
45. “Symptoms of Ill Health Ascribed to Electromagnetic Field Exposure – A Questionnaire Study” by Martin Roosli, *et al.* (Complainant’s MB at 186-87)

⁵ The Complainant’s Exhibit 4, which was stricken from the record, is about the same topic and contains a long quoted passage that appears verbatim in this document. (Tr. 128-29)

46. "Research Summaries" portion of BioInitiative Report (2012). (Complainant's MB at 188)
47. Abstract of article titled "Prolonged use of cellular telephones may lead to reduced melatonin production, and elevated 60-Hz MF exposures may potentiate the effect" by JB Burch, *et al.* (Complainant's MB at 188-89)
48. Abstract of and link to full article titled "Occupational Electromagnetic Field Exposures Associated with Sleep Quality: A Cross-Sectional Study" by H. Liu, *et al.* (Complainant's MB at 189-91)
49. Abstract of Singh, *et al.*, article on "Effect of Occupational EMF Exposure from Radar at Two Different Frequency Bands on Plasma Melatonin and Serotonin Levels." (Complainant's MB at 191-93)
50. Abstract of "survey study" by Santini, *et al.* (article in French). (Complainant's MB at 193-94)
51. Abstract of and link to full study titled "The Therapeutic Effect of a Pulsed Electromagnetic Field on the Reproductive Patterns of Male Wistar Rats Exposed to a 2.45-Ghz Microwave Field" by Kumar, *et al.* (Complainant's MB at 194-96)
52. Excerpt from article titled "900-MHz microwave radiation promotes oxidation in rat brain" by Kesari, *et al.* (Complainant's MB at 196-98)
53. Copies of and link to additional portions of Daniel Hirsch article not provided with Complainant's Exhibit 15. (Complainant's MB at 206, 213-16)
54. Hyperlink to letters written by Dr. Anthony Miller. (Complainant's MB at 218)
55. Hyperlink to article written about Dr. Anthony Miller. (Complainant's MB at 218)
56. Letter written by Dr. Anthony Miller to Petaluma City Schools dated August 4, 2016. (Complainant's MB at 221-22)
57. Excerpts from the Commission's website about smart meters. (Complainant's MB at 234-36)
58. A statement that since he submitted his Exhibit 22, "Oklahoma added adopt out." (Complainant's MB at 237)
59. Excerpt from and link to online article about New Mexico's smart meter roll-out. (Complainant's MB at 241)
60. Additional portions of and link to full version of Complainant's Exhibit 24 about the Nuremberg Code. (Complainant's MB at 245-46)

Furthermore, the Complainant attempts to reintroduce and rely upon exhibits that were explicitly stricken by the ALJ, such as Complainant's Exhibits 4, 9, 11, and 19. (*See* Complainant's MB at 5, 27-28, 180-81; Tr. 128-29, 151-54, 157-61, 178-79)

The Complainant's attempt to introduce and rely upon all of this extra-record evidence should be rejected. It is well-established that parties cannot present new evidence at the briefing stage or cite stricken testimony and exhibits. *See, e.g., Pa. PUC v. Nat'l Fuel Gas Distrib. Corp.*, 1993 Pa. PUC LEXIS 95, at *7-10 (Order entered July 30, 1993); *Petition of the Borough of Cornwall for a Declaratory Order*, 2016 Pa. PUC LEXIS 3, at *24-26 (Jan. 6, 2016) (Recommended Decision), *adopted as modified*, Docket No. P-2015-2476211 (Order entered Aug. 11, 2016). "The Commission, as an administrative body, is bound by the due process provisions of constitutional law and by the principles of common fairness." *Hess v. Pa. PUC*, 107 A.3d 246, 266 (Pa. Cmwlth. 2014) (citations omitted). "Among the requirements of due process are notice and an opportunity to be heard on the issues, to be apprised of the evidence submitted, to cross-examine witnesses, to inspect documents, and to offer evidence in explanation or rebuttal." *Id.* (citations omitted).

Indeed, Section 332(c) of the Public Utility Code entitles every party to, among other things, "submit rebuttal evidence" and "conduct such cross-examination as may be required for a full and true disclosure of the facts." 66 Pa. C.S. § 332(c); *see Nat'l Fuel.*, 1993 Pa. PUC LEXIS at *10 ("[S]uch material was outside the record and could be detrimental to the rights of other parties to confront such evidence."). Accordingly, extra-record evidence in briefs is commonly stricken⁶ because including extra-record materials in a party's brief "brings up hearsay problems

⁶ *See, e.g., Trucco v. PPL Elec. Utils. Corp.*, 2002 Pa. PUC LEXIS 21, at *5 (Order entered Mar. 29, 2002) (noting that ALJ Paist "struck those portions of the Complainants' Main Brief which referenced extra-record evidence, including those various exhibits attached to that Main Brief"); *Application of Kenneth Scott Cobb, t/a Kennys Transp. Serv.*, 2012 Pa. PUC LEXIS 1802, at * (Nov. 16, 2012) (Initial Decision) (Barnes, J.) (granting

and problems associated with the right to respond to evidence.” *Pa. PUC v. Pa. Power & Light Co.*, 1995 Pa. PUC LEXIS 190, at *232 (July 28, 1995) (Recommended Decision) (“*PP&L*”).

Here, all of these materials were either introduced for the first time in the Complainant’s Main Brief or stricken at the evidentiary hearing. By waiting until the briefing stage to present any new materials, the Complainant denied PPL Electric an opportunity to review and inspect those materials, to cross-examine the Complainant or other witnesses about them, and to present evidence in rebuttal. Likewise, all of the excluded exhibits were stricken before the Company presented its case in rebuttal. (Tr. Tr. 128-29, 151-54, 157-61, 178-79) Therefore, it would violate PPL Electric’s due process rights for any findings of fact to be based upon or influenced by the Complainant’s extra-record evidence.

In addition, Section 5.431 of the Commission’s regulations prescribes that “[t]he record will be closed at the conclusion of the hearing unless otherwise directed by the presiding officer or the Commission.” 52 Pa. Code § 5.431(a). Particularly relevant here, “[a]fter the record is closed, additional matter may not be relied upon or accepted into the record unless allowed for good cause shown by the presiding officer or the Commission upon motion.” *Id.* § 5.431(b). Petitions to reopen the record can be granted “if there is reason to believe that conditions of factor or law have so changed as to requires, or that the public interest requires, the reopening of the record.” 52 Pa. Code § 5.571.

Here, the record closed at the conclusion of the evidentiary hearing on March 9, 2018. The Complainant made no motion to keep the record open or to reopen the record so that his extra-record evidence could be admitted. Moreover, in his Main Brief, the Complainant never

motion to strike the applicant’s brief “for attempting to introduce new facts and documents into evidence not previously offered or admitted into the record at the hearing of September 5, 2012”), *became final without further action*, Docket No. A-2011-2280175 (Order entered Jan. 7, 2013); *see also* 52 Pa. Code § 5.501(a)(2) (stating that briefs must contain “[r]eference to the pages of the record or exhibits where the evidence relied upon by the filing party appears”).

demonstrates good cause for introducing this extra-record evidence, nor does he show changes in fact or law that would warrant the reopening of the record to admit such evidence. As a result, the Complainant's extra-record evidence cannot be admitted into the record.

Thus, although PPL Electric has decided not to burden this court with the time and expense of ruling on a Motion to Strike the portions of the Complainant's Main Brief, the ALJ and Commission should not rely on the Complainant's extra-record materials to make any findings in this proceeding. *See PP&L*, 1995 Pa. PUC LEXIS at *232; *Petition of Pa. Power Co. for Approval of Interim POLR Supply Plan*, 2006 Pa. PUC LEXIS 56, at *3 (Order entered Apr. 28, 2006) (observing that "ALJ Gesoff ignored Reliant's Reply Brief, due to the extra-record evidence contained within").

Based on the foregoing, the Complainant's attempt to introduce and rely upon extra-record evidence in his Main Brief should be rejected.

B. THE COMPLAINANT MISCHARACTERIZES THE RECORD AND UNREASONABLY RELIES UPON CERTAIN EXHIBITS AND TESTIMONY

In his Main Brief, the Complainant mischaracterizes the record and unreasonably relies upon certain exhibits and testimony. First, the Complainant alleges that PPL Electric witness Larson "acknowledged safety design deficits in [the Company's] AMI meter," such as how it is "not designed as a protection device," and that "over 100,000 smart meters were removed in Saskatchewan due to fire hazards from the meters." (Complainant's MB at 7) In actuality, Mr. Larson specifically testified that the AMI meter raised no safety or fire concerns. (Tr. 237, 243-45) The surge protection in the new AMI meter is no different than the analog meter on the Complainant's residence, and the new AMI meter actually can better withstand surges because it is constructed of more resilient materials. (Tr. 237, 244-45) Moreover, Mr. Larson clarified that

the recall in Saskatchewan referenced by the Complainant involved a different brand of AMI meter than the one PPL Electric is deploying. (Tr. 243)

Second, the Complainant contends that non-ionizing radiation has been labeled a class 2B carcinogen. (Complainant's MB at 37) This is incorrect and contradicted by the Complainant's own evidence. As stated in Complainant's Exhibit 17, the World Health Organization's ("WHO") International Agency for Research on Cancer ("IARC") did **not** classify radio frequency (RF) fields as a carcinogen, *i.e.*, an exposure that is known to cause cancer. IARC did not even classify RF fields as likely or "probable" to be a carcinogen. Instead, IARC said that based on the "limited evidence" from studies on cell phone users, it could only describe RF fields from cell phones as "**possibly**" related to cancer. (Complainant's Exhibit 17) (emphasis in original) However, for RF fields from other sources of exposure, such as "environmental" sources (which include smart meters), the scientific evidence was "inadequate" to reach a conclusion about any cancer risk. (Complainant's Exhibit 17) The Complainant's mischaracterization of the IARC classification is an attempt to distort the scientific record. Dr. Israel, who is a medical expert and a cancer researcher, testified that IARC is a division of the WHO, and after IARC's report on RF fields, the WHO issued a statement emphasizing that "no adverse effects have been established" as being caused by RF fields. (PPL Electric Statement No. 2, p. 20, line 17 to p. 21, line 4)

Third, the Complainant claims he cited studies showing that exposure to RF fields and "other types of electromagnetic fields . . . inhibit melatonin production." (Complainant's MB at 23) However, Dr. Israel reviewed the Burch (2002) and Clark (2007) studies cited by the Complainant and explained that they do **not** show that RF fields cause adverse effects on melatonin levels. (PPL Electric Statement No. 1, p. 16, line 15 to p. 17, line 5) In the Burch

study, the researchers “examined melatonin excretion in male electric utility workers who had occupational exposures to power frequency fields and used cell phones.” (PPL Electric Statement No. 1, p. 16, line 22 to p. 17, line 1) Ultimately, “[t]he researchers found no consistent statistically significant effects on melatonin levels in the workers based on cell phone use.” (PPL Electric Statement No. 1, p. 17, lines 1-2) The Clark study “looked at pre-menstrual or postmenstrual women with exposures to power frequency fields and RF fields” and “found that exposures to RF fields had no effect on melatonin levels in the women.” (PPL Electric Statement No. 1, p. 17, lines 2-5) Dr. Israel also evaluated the studies listed in Exhibit 5, which Complainant offered as evidence of RF fields having effects on melatonin. Dr. Israel testified that these studies do **not** show that RF fields affect melatonin levels in people. (Tr. 291-93) Therefore, the Complainant’s contention lacks merit.

Fourth, the Complainant avers that his witness, Mr. Bathgate, testified that the new AMI meter is not compliant with FCC rules. (Complainant’s MB at 224) However, Mr. Bathgate admitted that all of his tests and measurements were made on an Itron brand AMI meter, which is not the Landis+Gyr brand meter being deployed by the Company. (Tr. 81-83) In contrast, Dr. Davis based his testimony about the RF fields from the AMI meter on the actual specifications for the meter being used by PPL Electric. (PPL Electric Statement No. 1, p. 9, lines 8-12) Dr. Davis further testified that the Complainant’s reported measurements of RF fields from his neighbor’s AMI meter were made using a “low-cost consumer grade device” and not a professional quality meter, such as the one used by Dr. Davis in a controlled laboratory setting. (PPL Electric Statement No. 1, p. 10, lines 4-19) Even so, the peak RF fields reported by Complainant were 33 times lower than the RF exposure standard adopted by the FCC. (PPL Electric Statement No. 1, p. 10, lines 7-9)

Fifth, the Complainant errs in claiming that Mr. Bathgate's tests were performed using the same AMI meter as PPL Electric: a Landis+Gyr Focus AXR-SD meter. (Complainant's MB at 4; Tr. 245) Mr. Bathgate actually acknowledged that he used an Itron brand meter to conduct all of his tests and measurements, which is not the Landis+Gyr brand meter being deployed by the Company. (Tr. 81-83)

Sixth, the Complainant alleges that Dr. Christopher Davis "asserted in his Direct Testimony that [PPL Electric's] AMI meter only signaled 84 seconds a day, implying 84 times a day." (Complainant's MB at 62) (emphasis added) Dr. Davis never made such an implication. In fact, he explicitly stated in his direct testimony, "The total daily time of RF signaling from the AMI meters used by PPL Electric is 84 seconds over the course of 24 hours, with individual signal durations of only 46 to 63 milliseconds." (PPL Electric Statement No. 1, p. 7, lines 21-23) (emphasis added)

Seventh, the Complainant claims that PPL Electric's expert witnesses were unqualified and unreliable and tried to critique their qualifications and opinions. (Complainant's MB at 22, 71) The Complainant even went so far as to claim that Dr. Davis's comments about RF fields are "cavalier." (Complainant's MB at 32) However, the Company presented overwhelming evidence that Dr. Christopher Davis and Dr. Mark Israel possess exceptional qualifications and experience, that they are eminent and highly regarded in their scientific communities, and that their opinions are reliable and sound. (PPL MB at 15-25) Moreover, the Complainant never objected to Dr. Davis and Dr. Israel being certified as expert witnesses. (Tr. 254-55, 289-90) Specifically, Dr. Davis was certified as an expert in physics, biophysics, chemistry, electrical engineering, electromagnetics, bioelectromagnetics and radiofrequency bioelectromagnetics and dosimetry, and Dr. Israel was certified as an expert in medicine and medical research, in

particular as related to radiofrequency fields and health. (Tr. 254-55, 289-90) Therefore, the Complainant waived any claim that Dr. Davis and Dr. Israel are not qualified to testify as experts in their respective fields of expertise.

Further, Dr. Davis and Dr. Israel testified about their thorough and detailed evaluations of the relevant scientific information on its merits. (See PPL Electric Statement Nos. 1 and 2) Their expert opinions are based on using their extensive professional training and experience in their fields of expertise to evaluate that scientific information. The Complainant “make[s] no pretense of being an expert” in any of these fields. (Tr. 198) Nevertheless, he argues that Dr. Davis and Dr. Israel were somehow remiss because they did not take into account the various activist website documents, statements and claims that he downloaded from the internet. (Complainant’s MB at 32-222) These website materials, however, are not science, are not reasonable substitutes for science and do not provide any credible basis for reliable medical and scientific opinions. The Complainant’s view is that any supportive document or a statement he can find on the internet must be trustworthy. This is an entirely unscientific approach. The appearance of a document or a statement on a website or even multiple websites does not imbue the document or statement with any inherent credibility or reliability. To the contrary, Dr. Israel testified that as a medical expert, he could not rely on any of Complainant’s exhibits because: (1) they are not actual scientific studies; (2) they lack scientific objectivity, (3) they do not offer a balanced assessment of the scientific research; and (4) they do not provide scientifically reliable or useful data for reaching conclusions about RF fields and health. (PPL Electric Statement No. 2, p. 17, line 6 to p. 20, line 11)

Finally, the Company observes that the Complainant largely relies upon his written rebuttal testimony (*i.e.*, Complainant’s Exhibit 27) and other hearsay documents to try to refute

the expert witnesses' testimony. (Complainant's MB at 32-222) Indeed, the Complainant's Main Brief can be described fairly as a textbook example of a litigant relying on hearsay statements in an effort to prove his claims. PPL Electric explained in its Motion in Limine that almost every page of Exhibit 27 quotes from or contains a reference to some material from hearsay statements. (PPL Motion in Limine ¶ 34) Exhibit 27 also contains numerous quotes from third-party materials that are not included in the Complainant's Exhibits and internet links to other materials. (PPL Motion in Limine ¶ 34) Consequently, the Company objected to Exhibit 27 on the grounds that it was inadmissible hearsay. (PPL Motion in Limine ¶¶ 32-35; Tr. 306) As explained in PPL Electric's Main Brief, the Complainant's hearsay documents, which were properly objected to, cannot form the basis of any findings of fact. (PPL MB at 27-29) Moreover, many of the other documents to which the Complainant cites are extra-record evidence that should be disregarded.⁷

For these reasons, the Complainant's arguments should be rejected because he mischaracterizes the record and unreasonably relies upon certain testimony and exhibits.

C. THE COMMISSION HAS NO JURISDICTION OVER THE COMPLAINANT'S CLAIM THAT HE HAS A DISABILITY UNDER THE AMERICANS WITH DISABILITIES ACT

The Complainant also alleges that he has a disability under the ADA and should be granted a reasonable accommodation. (Complainant's MB at 8, 25-27, 76-79) As addressed above, there is no competent medical record to establish that the Complainant has been medically diagnosed with any disability recognized under the ADA. More significantly, however, the Complainant fails to recognize that the Commission lacks jurisdiction to determine whether he has a disability defined by the ADA and to enforce the ADA's provisions.

⁷ See Section III.A., *supra*.

As a “creature of statute,” the Commission “has only those powers which are expressly conferred upon it by the Legislature and those powers which arise by necessary implication.” *Feingold v. Bell of Pa.*, 383 A.2d 791, 794 (Pa. 1977) (citing *Allegheny Cnty. Port Auth. v. Pa. PUC*, 237 A.2d 602 (Pa. 1967); *Del. River Port Auth. v. Pa. PUC*, 145 A.2d 172 (Pa. 1958)). The Commission cannot grant itself by regulation or order authority that was not conferred upon it by the Legislature. *See W. Pa. Water Co. v. Pa. PUC*, 370 A.2d 337, 339-40 (Pa. 1977) (citations omitted); *Fairview Water Co. v. Pa. PUC*, 502 A.2d 162, 165-66 (Pa. 1985) (citations omitted); *Fed. Deposit Ins. Corp. v. Bd. of Fin. & Revenue*, 84 A.2d 495, 499 (Pa. 1951) (citations omitted).

Here, nothing in the Public Utility Code grants the Commission jurisdiction to interpret and enforce the ADA. In fact, the Commission ruled earlier this month on an identical claim for ADA accommodation related to the installation of an AMI meter that “it is beyond the jurisdiction of the Commission to determine whether the Complainant has a disability or a cause of action under the American[s] with Disabilities Act.” *Frompovich v. PECO Energy Co.*, Docket No. C-2015-2474602, p. 43 (Order entered May 3, 2018). As the Commission declared in *Frompovich*, if the Complainant “believes that [he] has a valid ADA claim,” then he “must work through the federal courts or one of the federal enforcement agencies, which include the Department of Labor, the Equal Employment Opportunity Commission, the Department of Transportation, the Federal Communications Commission or the Department of Justice, but not this Commission.” *Id.*

Thus, in keeping with the Commission’s recent ruling in *Frompovich* and the plain language of the Public Utility Code, the Commission lacks jurisdiction over the Complainant’s claim that he has a disability and should be granted an accommodation under the ADA.

D. THE COMPLAINANT'S LEGAL ARGUMENTS ARE FLAWED AND BASED ON IRRELEVANT AND INAPPLICABLE AUTHORITIES

The Complainant also makes flawed legal arguments and relies upon irrelevant and inapplicable authorities in support of his requested opt-out of the new AMI meter installation. Specifically, the Complainant argues, among other things, that: (1) Act 129 was drafted as an opt-in bill; (2) the Public Utility Regulatory Policies Act of 1978 ("PURPA"), as amended by the Energy Policy Act of 2005, makes smart meter installations voluntary; (3) Pennsylvania's "Castle Doctrine" permits the opt-out; (4) other states have established opt-out processes, and court decisions in other states and countries allegedly support his claims; and (5) the installation of the new AMI meter violates the Nuremberg Code. (Complainant's MB at 7, 24-26, 38, 57-61, 96-105, 103-07, 115-19, 156-61, 166-72, 174-78, 228-48) None of these arguments has merit.

First, Act 129 was not drafted as an opt-in bill. The Complainant mistakenly relies upon Section 2807(f)(2)(i) in support of his argument, which states that an EDC "shall furnish smart meter technology . . . [u]pon request from a customer that agrees to pay the cost of the smart meter at the time of the request." (Complainant's MB at 230-31) However, that statutory provision merely enables a customer to request a smart meter if he or she wants one installed sooner than the meter would be installed pursuant to the EDC's deployment schedule. Indeed, as explained in PPL Electric's Main Brief, Section 2807(f)(2)(iii) mandates that the Company install the new AMI meter "[i]n accordance with a depreciation schedule not to exceed 15 years." (PPL MB at 10-11) As interpreted by the Commission, subparagraph (iii) requires the Company and other EDCs to install the new AMI meters for all their customers. (PPL MB at 11) Therefore, Act 129 is not an opt-in statute.

Second, although the installation of smart meters may not be mandatory under PURPA, the Commonwealth Court of Pennsylvania ruled that the smart meter provisions of Act 129 and

the Public Utility Code are not preempted by the Energy Policy Act of 2005 and PURPA. *See Romeo v. Pa. PUC*, 154 A.3d 422, 428 (Pa. Cmwlth. 2017). Therefore, Act 129's mandate that new AMI meters be installed is not preempted by federal law.

Third, the Castle Doctrine bill cited by the Complainant is inapplicable to the new AMI meter installation. *See* Act 2011-10, H.B. No. 40, P.L. 48. That legislation, known as "Act 10", concerns the use of deadly force and established an explicit presumption "that a person acts reasonably in using deadly force where another individual unlawfully and forcefully enters or is in the process of entering the residence of the person allegedly acting in self-defense." *Commonwealth v. Childs*, 2014 Pa. Super. Unpub. LEXIS 447, at *28-29 (2014), *affirmed*, 142 A.3d 823 (Pa. 2016). Certainly, the instant proceeding does not concern an individual's use of deadly force in self-defense. Moreover, the Complainant only quoted the preamble of the bill, which is not the actual law. *See Palairot's Appeal*, 67 Pa. 479 (1871); *UMCO Energy, Inc. v. Dep't of Env'tl. Prot.*, 938 A.2d 530, (Pa. Cmwlth. 2007), *appeal denied*, 951 A.2d 1168 (Pa. 2008), *cert. denied*, 2008 U.S. LEXIS 8527 (U.S. 2008).

Fourth, other states' opt-out provisions and regulatory actions,⁸ as well as the court decisions in other states and countries,⁹ have no applicability here. Utilities in others states operate under different laws and regulatory schemes. Although those states may have implemented or permitted an opt-out of new AMI meter installations, that is not the case in Pennsylvania. The plain language of Act 129 and the Commission's orders require PPL Electric to install the new AMI meter for all of its customers. (PPL MB at 11-13) Furthermore, it is

⁸ The Complainant briefly raises an issue about whether a fee should be imposed on customers who opt-out of AMI meter installations. However, this issue is not before the Commission. There is no opt-out under Act 129, and even if there were, PPL Electric currently has no authority under its Commission-approved tariff or Smart Meter Plan to assess such an opt-out fee. Therefore, the issue is premature and not ripe for decision.

⁹ Many of the "cases" cited by the Complainant are actually news articles commenting on these decisions. (*See, e.g.*, Complainant's MB at 156-62, 166-171) Such hearsay documents are not legal authorities.

well-established that court decisions from other jurisdictions are only persuasive authority, not binding precedent.¹⁰ See *Huber v. Etkin*, 58 A.3d 772, 780 n.8 (Pa. Super. 2012) (citation omitted); *Commonwealth v. Nat'l Bank & Trust Co.*, 364 A.2d 1131, 1335 (Pa. 1976) (citing *Ward's Appeal*, 137 A. 630 (Pa. 1927); *Penn-Lehigh Corp. Appeal*, 159 A.2d 56 (Pa. 1960)). Thus, these rulings and actions of other jurisdictions do not control the interpretation Act 129.

Finally, as explained in the Company's Main Brief, the Nuremberg Code does not apply to the Company's deployment of the new AMI meters. (PPL MB at 33)

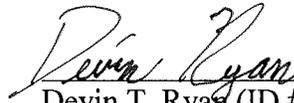
Based on the foregoing, the Complainant's legal arguments should be rejected because they are flawed and based on irrelevant and inapplicable authorities.

¹⁰ The cases cited by the Complainant are also distinguishable. Principally, many of them involve cell phones, cell towers, and microwave ovens, not smart meters. (See Complainant's MB at 38, 57-61, 96-105, 103-07, 115-19, 166-72) Moreover, some cases concern workers' compensation and disability claims under the statutes of foreign jurisdictions. See *McDonald and Comcare* [2013] AATA 105 (Austl.); *Yannon v. New York Tel. Co.*, 86 A.D.2d 241, 241-44 (N.Y. App. Div. 1982). Furthermore, the *Yannon* case involved a workers' compensation claim for death benefits resulting from exposure to radiation emitted by microwave oven units. As explained by Dr. Davis, "[o]ther than microwave ovens, . . . devices that use RF fields in the microwave portion of the RF range typically do not produce a wave that is intense enough to heat biological matter." (PPL Electric Statement No. 1, p. 8, lines 5-7) "Smart meters are a good example of those kinds of devices." (PPL Electric Statement No. 1, p. 8, lines 7-8) Therefore, the *Yannon* decision is irrelevant to the issues in this proceeding.

IV. CONCLUSION

WHEREFORE, as explained above and in PPL Electric Utilities Corporation's Main Brief, the Company respectfully requests that Administrative Law Judge Elizabeth H. Barnes recommend and the Pennsylvania Public Utility Commission deny the Formal Complaint of Alan V. Schmukler with prejudice.

Respectfully submitted,



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Attorneys for PPL Electric Utilities Corporation

Appendix A

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Alan Schmukler :

v : **Docket No. C-2017-2621285**

PPL Utilities Corporation :

Post Hearing Brief

Judge Elizabeth Barnes *c/o*

PA Public Utility Commission

Office of Administrative Law Judge

P.O. Box 3265, Harrisburg, PA 17105-3265

April 25, 2018

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I. Concise Statement of Case

On or about July 2017 the Complainant received notice from the Defendant (PPL (Electric Utilities Corporation) that they would be installing an AMI electric meter on Complainant's residence at 199 Strawberry St. The notice from the Defendant did not offer a choice in this, and it was presented as a fiat. The Complainant placed a lock on his current meter and posted notice that the Defendant did not have permission to install the AMI meter.

On or about August 2017, the Defendant installed an AMI meter on the party wall of the Complainant's neighbor, at 197 Strawberry Street. That meter is roughly 12 inches from Complainant's residence.

The Complainant subsequently filed a formal complaint with the PUC in which he alleged that he has suffered from Electromagnetic Hypersensitivity (EHS) for over 30 years and that exposure to the radiation emitted by the neighbor's meter would be a health threat for him and untenable. Complainant subsequently introduced exhibits to verify that he had been dealing with EHS for many years and that EHS is a legitimate and accepted disability.

Complainant testified during the March 9th hearing (Transcript – p.12, 11-17) that when the smart meter was installed on the property next door, his chronic insomnia

became much more severe, to the point that he was sleeping just two or three hours a night, and at one point he thought he was not going to survive. He further testified that after the AMI meter was installed he had long periods when he simply couldn't concentrate. He stated that he is a Chief Editor of a very large website and uses his intellectual processes constantly, but that all of a sudden, he had to struggle to concentrate. (Transcript p.13, 2-7). He also stated that he took extraordinary measures to try to block some of the radiation from the AMI meter including putting aluminum foil and mylar on some walls of the his home and sleeping in a Mylar poncho. (Transcript p 12, 19-25).

The Complainant testified in court that, using a handheld meter, he detected an RF transmission from the neighbor's smart meter every seven to twelve seconds (Transcript p.242, 5-7). Complainant's witness William Bathgate testified that, using a spectrum analyzer, he found that this model smart meter transmits every 4-10 seconds. (Transcript p.97, 11-17). While the Defendant had asserted that their meter only emits radiation 85 seconds a day, the Complainant's witness, William Bathgate, testified that the AMI meter could emit microwave bursts up to thousands of times a day in its attempt to communicate with other meters in the area which are part of the Defendant's "mesh network" of message management.

Defendant witness Christopher Davis asserted in his Direct Testimony that Defendant's AMI meter only signaled 84 seconds a day, implying 84 times a day. (P.7 of his Direct Testimony) but later acknowledged that the smart meter emits 1,720 transmissions per day, which is once every 1.2 minutes. (Transcript: p. 262 - 11,12).

In his original complaint, Complainant stated that the Defendant's AMI meter emits radio frequency (RF) radiation 24 hours a day, 7 days a week and that this constant exposure to microwave radiation has been associated with adverse health effects ranging from insomnia and concentration deficits to cancer. He produced various documents to prove these assertions. (Exhibits ~~9~~-10, ~~11~~-12, 13, 14, 15,16,17,18,~~19~~). Complainant's exhibit # 16, 2nd page - Bioinitiative 2012 - Conclusions Table 1-1).

The Complainant's witness William Bathgate also testified that in addition to the microwave radiation emitted by Defendant's AMI meter, the meter also created high frequency voltage transients due to its "switched mode power supply" (SMPS) and that these voltage transients were superimposed on the house wiring, creating electromagnetic fields that extended into the rooms of any home with an AMI meter.). (Hearing Transcript p.56 1-5, p.59, p.62, 22-25, p.65,66 -20-24 and Complainant Exhib 26).

Thus the Complainant, who asserts he is electromagnetically hypersensitive (EHS), is simultaneously exposed to both the AMI meter's direct microwave radiation and the electromagnetic field created by the transient currents it produces.

Complainant explained that reference was being made to studies of cell phone radiation because smart meters and cell phones both operate at around 900 MHz. In his response to Christopher Davis's Direct testimony, Complainant responded that smart meters were different from other RF emitting devices that people use, in that the use of those devices is voluntary, whereas smart meters operate 24/7 and cannot be shut off. He also provided statements from radiation expert Daniel Hirsch (Complainant exhib. 15 and see complete Hirsch article and graphs later in this Brief)) that smart meters by virtue of whole body radiation exposure, expose people to between 50 – 160 times the radiation of a cell phone.

Fire Hazard

In his original complaint, Complainant also averred that Defendant's AMI meter was a fire hazard, as it was not grounded and had no fuse or circuit breaker.

Complainant's witness, William Bathgate explained how the Defendant's AMI meter could burst into flame from a power surge and said he personally observed an AMI meter having exploded off the side of the house. Mr. Bathgate also said that the original Analog meters can withstand much higher surges without

exploding because there is a ground connection that allows a surge to short, to ground. (Transcript: p. 76-11-25, p. 77- 1-15, p. 78- 7-17, p 79, 5-9, p.78, 7-17).

Defendant witness Scott Larsen acknowledged safety design deficits in their AMI meter and poor response time to meter emergencies.

Complainant also introduced evidence that over 100,000 smart meters were removed in Saskatchewan due to fire hazards from the meters.

Opt Out

Complainant also provided in his exhibit 22, a list of 9 states which have adopted Opt- out laws, allowing residents to opt out of having a smart meter. Defendant counsel Renner stated that Defendants don't have the option to offer an opt-out solution. (Transcript P.185, 2-4). Complainant disputes this and has a right to opt out.

PA Act 129

Defendant asserts that their smart meter deployment policy is based on PA Act 129 (Transcript p. 232, 20-24). Complainant shows that Act 129 was intended to make smart meter deployment voluntary.

Nuremberg Code

Complainant asserts that Defendant's smart meter deployment is a violation of the Nuremburg Code.

Reasonable Accommodation

~~Complainant has a disability covered by the Americans with Disabilities Act and should be granted reasonable accommodation.~~

The Equation

What is at stake for the Complainant is whether he will ever again have restful sleep, whether he will ever enjoy the quality of life he had previous to the meter being installed and whether in fact he will survive.

What is at stake for the Defendant, is whether they will receive electric usage data from two AMI meters, or from two standard Analog meters. Analog meters have been used successfully for many years, and pose no problems for people with electromagnetic hypersensitivity, nor any radiation or fire hazards.

II. EXHIBIT LIST

~~The report of the Independent Review of the NTP study from the website of the National Toxicology Program NTP: https://ntp.niehs.nih.gov/update/2018/4/cell_phone/index.html — P.35~~

~~Conclusions of the NTP study from the website of the National Institute of Health. — P.35~~

~~<https://www.nih.gov/news-events/news-releases/high-exposure-radiofrequency-radiation-linked-tumor-activity-male-rats>~~

~~The full document of the Ramazzini Institute study, obtained directly from the Ramazzini Institute: <file:///C:/Users/Alanh/Documents/Belpoggi-Heart-and-Brain-Tumors-Base-Station-2018.pdf> — P.35~~

EMF Scientist Appeal <https://emfscientist.org/index.php/emf-scientist-appeal>

P.38

EU Scientist Appeal about 5G

<https://drive.google.com/file/d/0B14R6QNkmaXueIFrNWRQcThNV0U/view>

P.44

IARC classifies electromagnetic radiation as a possible carcinogen. **P. 42**

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5504984/> Complainant

~~**Bioinitiative 2012 Report:** <http://www.bioinitiative.org/> **P. 9**~~

Gloria Vogel - A Coming Storm For Wireless? (Insurers abandon RF radiation market. <http://www.talkmarkets.com/content/stocks--equities/a-coming-storm-for-wireless?post=143501> **P. 53**

~~The Rajasthan High Court and the Supreme Court rule danger from cell phone radiation — Order moving of Cell Towers — Article below)~~

~~<https://www.deccanherald.com/content/294813/no-mobile-towers-near-chools.html><https://www.deccanherald.com/content/294813/no-mobile-towers-near-chools.html> **P. 58**~~

~~**Barrie Trower — British physicist and microwave weapons expert talks about dangers of wifi and other microwave radiation.** **P.61**~~

~~**VIDEO** https://www.youtube.com/watch?v=z99_SzoXZdY~~

BIOINITIATIVE 2012 Conclusions - <http://www.bioinitiative.org/conclusions/>

P. 133

~~**Harvard University ethicists described FCC as a “captured agency”** **P. 65**~~

~~https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency_alster.pdf~~

~~“FCC does not claim that their exposure guidelines provide protection for exposures that are chronic/prolonged and non thermal.”~~

~~http://www.emrpolicy.org/litigation/case_law/docs/noi_epa_response.pdf~~

Brussels International Scientific Declaration on Electromagnetic Sensitivity

~~<http://doeplayer.net/24050988-2015-brussels-international-scientific-declaration-on-electromagnetic-hypersensitivity-and-multiple-chemical-sensitivity.html>~~ **P.72**

Government of Sweden recognizes Electromagnetic Hypersensitivity

~~<https://www.emfacts.com/2009/02/1014-electrosensitivity-in-sweden-by-olle-johansson/>~~ **P.11**

The Canadian Human Rights Commission which recognized EHS in 2007.

~~<http://www.aseq-chaq-en.ca/medical-doc.html>~~ **P. 74**

The European Parliament recognized EHS in 2009 P. 74

~~<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2009-0216+0+DOC+XML+V0//EN>~~

~~**The Americans with Disabilities Act (ADA) The United States Access Board includes electromagnetic sensitivity in its guidelines:**~~ **P.76**

~~<https://www.access-board.gov/research/completed-research/indoor-environmental-quality/recommendations-for-accommodations>~~

Council of Europe: Resolution 1815 (Parliamentary Assembly, 2011)

~~<http://assembly.coe.int/nw/xml/XRef/Xref-XML2HTML-en.asp?fileid=17994&lang=en>~~

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European Union- Parliamentary Resolution Point

28: : Parliamentary Resolution (2008/2211(INI)) (2009) **P.79**

~~**Video interview with Dr. David O. Carpenter** **P.80**~~

~~<https://www.youtube.com/watch?v=n7L21XOC2wA>~~

~~**Excessive Exposure to Radiofrequency Electromagnetic Fields May Cause the Development of Electrohypersensitivity**~~

~~https://m.box.com/shared_item/https%3A%2F%2Fapp.box.com%2Fs%2Ftivdzn6msilsfemyeflsm3o0go9zk9dn/view/192768679154~~ **P.80**

~~**“Aspects of studies on the functional impairment electrohypersensitivity “**
by Olle Johansson **P.80**~~

~~https://m.box.com/shared_item/https%3A%2F%2Fapp.box.com%2Fs%2Ftivdzn6msilsfemyeflsm3o0go9zk9dn/view/192768748443~~

~~**Physicist Cyril W. Smith PhD – Electrical Sensitivities And The Electrical Environment** **P.82**~~

~~https://m.box.com/shared_item/https%3A%2F%2Fapp.box.com%2Fs%2Ftivdzn6msilsfemyeflsm3o0go9zk9dn/view/192768587541~~

Frank Clegg, former pres. of Microsoft Canada, - Invisible Threat

<http://vitalitymagazine.com/article/invisible-threat/> **P. 86**

~~**Electrosensitivity in Sweden by Olle Johansson** **P.95**~~

~~<https://www.emfacts.com/2009/02/1014-electrosensitivity-in-sweden-by-olle-johansson/>~~

Antoinette Yannon wins claim for late husband Samuel Yannon P.96

<https://www.leagle.com/decision/198232786ad2d2411289>

~~US American Disability Access Board: MCS and EHS "The Board recognizes that electromagnetic sensitivities may be considered disabilities under the ADA. <https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/background/ada-accessibility-guidelines-for-recreation-facilities/general-issues> P. 159~~

~~US American Disability Access Board: Report P.159~~

USA: "Court rules for Berkeley in cellphone right to know case"

~~<https://smartmeternewsupdates.wordpress.com/2015/05/04/judge-rules-electric-co-op-violated-discrimination-laws/> P.159~~

USA: LAUSD accommodates ES teacher (Los Angeles Unified School Board provides WiFi-free environment without radiation for Mrs Anura Lawson,

~~<http://www.electrosmogprevention.org/public-health-alert/lausd-accommodates-teacher-who-fell-ill-after-wireless-installed/> P. 162~~

USA: P.163 California state legislature recognizes people with electromagnetic sensitivities as disabled: <https://smartmeterharm.org/2017/09/15/california-legislature-recognizes-people-with-electromagnetic-sensitivities-as-disabled/>

Council of Europe: Resolution 1815 (Parliamentary Assembly, 2011) **P. 164**

Australia: Dr McDonald and Comcare, AATA 105 (February 28th 2013; scientist won 75% of salary when his employer failed to protect him from radiation although he had been diagnosed with EHS) <http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/cth/aat/2013/105.html> **P.103**

~~**Cell Phone Radiation Lawsuits May Get a Boost from Italian Supreme Court Ruling** <http://www.consumerinjurylawyers.com/Cell-Phone-Radiation-Lawsuits-May-Get-Boost-from-Italian-Supreme-Court/> **P. 108**~~

Letter from Dr. David O. Carpenter to New York State Public Service Commission **P.110**

~~**Appeals Court Rebuffs ANA and Wireless Carriers Over Cell Phone Radiation Warnings** **P.115**~~

~~<https://www.mediapost.com/publications/article/308606/appeals-court-rebuffs-ana-and-wireless-carriers-ov.html?edition=105589>~~

The 9th U.S. Circuit Court of Appeals denied an *en banc* hearing to the Wireless Industry's challenge to the Berkeley cellphone right to know act.

P.116

~~**Letter To AT&T Chairman C. Michael Armstrong From WTR Chairman Dr. George L. Carlo** <https://www.rfsafe.com/dr-george-l-carlo-letter-to-att-chairman-on-cell-phone-radiation/> **P.120**~~

~~WSJ Reports Murray Cellphone Cancer Case May Cost Wireless Industry Over 1.9 Billion Dollars <http://www.sun-sentinel.com/sfl-olegal02oct02-story.html> P.127~~

France: French High Court bans wireless smart meter for EHS P.156

Spain: Teacher awarded 100% of salary (The Spanish Labour Court of Madrid recognised the permanent incapacity of a college professor who suffered from CFS and environmental EHS and awarded 100% of the base salary. P.157

Spain: "A telecoms engineer with electrosensitivity is awarded disability benefits because of his inability to work in WiFi areas" (Ana Macpherson, Lavanguardia, August 2 2016, where the High Court in Madrid awarded disability benefit to "Spain: High Court of Madrid Ruling Recognizes "Electrosensitivity" as Grounds for Total Permanent Disability" P. 158

UK: Employment and Support Allowance awarded (Document ref. no.: 171) "Were it not for the EMR the appellant would lead a normal life with little or no functional impairment. P.158

European Union: Parliamentary Resolution (2008/2211(INI)) (2009) P.164

~~Freiburger Appeal by over 1,000 physicians: "International Appeal 2012" <http://freiburger-appell-2012.info/en/recommendations.php?lang=EN> P.165~~

~~**International Commission on Non-Ionizing Radiation Protection (ICNIRP)**~~
~~————— **P.166**~~

~~Alaskan Supreme Court: "Award for RF Radiation Injury Below Thermal Exposure Limit" (LBA Group, 2007):~~ ~~————— **P.166**~~

~~**Canada:** John D. Evans, a World War II veteran, had his malignant melanoma related to his service as a Wireless/Radar Mechanic~~ ~~————— **P.167**~~

~~**Denver, Colorado, USA:** "FM Radio Cancer Suit Settled"~~ ~~————— **P.168**~~

~~**Italy:** Ivrea Court: "Italian court finds link between cell phone use and tumor"~~
~~**P.168**~~

~~Italian Supreme Court: "Italian Supreme Court rules mobile phones can cause brain tumours"~~ ~~————— **P. 169**~~

~~**USA:** "Court victory is a first for cell-phone programmers"~~ ~~————— **P.170**~~

~~**Enforced environmental radiation violates the Nuremberg Code**—Dr. Andrew Goldsworthy~~ ~~————— **P.174**~~

~~<https://inthesenewtimes.com/2010/11/14/andrew-goldsworthy-on-smart-meters/>~~

~~**France** WiFi banned in nurseries, limited in primary schools (2015). **P.174**~~

~~**Germany, Switzerland:** Bavaria 2007; Hesse 2010; Frankfurt 2006; Thurgau 2008:~~ ~~————— **P.174**~~

~~**Israel:** Haifa, Israel's third largest city, disconnects WiFi: **P.175**~~

~~**Russia (RNCNIRP) (2011) "Usage of a mobile phone by children and adolescents under 18 years old is not recommended by the Sanitary Rule .176**~~

~~**Electrosensitivity has been included under the American Disability Access Board since the 1990s (General Issues). P.177**~~

Complainant's Personal Evidence of Electromagnetic Sensitivity P.178

Journal of Chemical Neuroanatomy - Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression-Insomnia is the number one symptom following microwave exposure.
<https://www.sciencedirect.com/science/article/pii/S0891061815000599> **P.180**

~~**Studies showing non-ionizing radiation lowers melatonin levels. P.182-197**~~

~~**How Big Wireless Made Us Think That Cell Phones Are Safe: A Special Investigation Nation Magazine** <https://www.thenation.com/article/how-big-wireless-made-us-think-that-cell-phones-are-safe-a-special-investigation/> **P.199**~~

~~**Radiation Exposure from Smart Meters vs Cell Phones—Smart meters expose people to 50—160 times the radiation of a cell phone.** Daniel Hirsch
http://eon3emfblog.net/wp-content/uploads/2011/02/110212_GBG-on-Smart-Meters.pdf **P.205**~~

~~**Dr. Anthony B. Miller—Cell phone radiation is a carcinogen.**
<https://phpa.health.maryland.gov/OEHFP/EH/Shared%20Documents/CEHPAC/CEHPAC%20Dec%202013%20Comments%20Part%204.pdf> **P.218**~~

Switched Mode Power Supply (SMPS) and Transients from Smart Meters

P.223

FIRE HAZARD From Smart Meter P.225

Legal Issues in the Case P.228

PA 129 and the Federal Law were intended make smart meter purchase voluntary.

Federal - Summary: H.R.6 — 109th Congress (2005-2006) P.229

Subtitle E: Amendments to PURPA - (Sec. 1251) P.229

The Energy Policy Act of 2005 (16 U.S.C. §2621(d)(14)(A) and (C)

16 U.S.C. §2621(d)(14)(A) and (C). P.229

Smart Meter Law in Pennsylvania: P.230

PUBLIC UTILITY CODE (66 PA.C.S.) - OMNIBUS AMENDMENTS

Act of Oct. 15, 2008, P.L. 1592, No. 129 Cl. 66

Session of 2008 - No. 2008-129

HB2200 §2807(f)7(2)(i) P.230

<http://www.legis.state.pa.us/WU01/LI/LI/US/HTM/2008/0/0129..HTM>

PA Act 129 P.231

Act 129 of 2008 amended Section 2807 P.231

The Implementation Order of Act 129 P.231-232

~~The PA PUC website affirms the voluntary nature of smart meter placement.~~

P.234

Maryland, Vermont, Maine, Texas, California, Arizona, Washington state, Florida, Hawaii, ~~Oklahoma~~, offer smart meters opt outs. **P.237**

After holding public hearings, other states mandated either opt outs or opt (Kreider v PECO: C-2015-2469655) **P.237**

Re: Pa Opt Out Bills Thwarted P.238

OPT –Out bills P.239

Pa House Bill 1564

<http://www.legis.state.pa.us/cfdocs/Legis/CSM/showMemoPublic.cfm?chamber=H&SPick=20170&cosponId=21661>

Pa Senate Bill 441

P.239

<http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2017&sessInd=0&billBody=S&billTyp=B&billNbr=0441&pn=0432>

Are Opt out fees justified? Cost comparison - Washington Utilities and Transportation Commission Policy and Interpretive Statement on Customer Choice for Advanced Meter Installation, Docket U-180117 Ser. Date April 10, 2018 P.239

No hardship from offering Opt-Out - (See Maryland PSC Order 85294 and Maryland PSC Order 87264 issued November 24, 2015. (Murphy v PECO *Op. Cit.* Statement 2S Surrebuttal Testimony at p 24, lines 5-8.) **P.240**

~~**New Mexico Public Regulation Commission rejected smart meters.**
<https://www.metering.com/industry-sectors/pnm-smart-meters/> **P.240**~~

The Castle Doctrine: House Bill No. 40 Session of 2011 **P.242**

<http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2011&sessInd=0&billBody=H&billTyp=B&billNbr=0040>

Is the Defendant providing safe service? 66 Pa.C.S.A. § 1501 **P.234**

~~**Nuremberg Code “The voluntary consent of the human subject is absolutely essential.”** <http://www.nejm.org/doi/full/10.1056/NEJM1997111333372006> **P.244**~~

III. Argument Summary

1. Complainant is electromagnetically hypersensitive (EHS) and has been for many years. He has suffered from chronic insomnia which has been severely exacerbated since the Defendant's AMI smart meter was installed on the house next to his, which shares an adjoining wall. ~~Electromagnetic sensitivity is a disability under the American's with Disabilities Act.~~ It is also recognized throughout the world.

2. Why cell phone radiation is used as evidence in this case. Cell phone radiation is non-ionizing radiation in frequencies similar to those emitted by Defendant's AMI smart meter.

Note: the bulk of the Complainant's argument and evidence are couched in terms of showing that testimony of Defendant's witnesses was not an accurate representation of the facts.

3. Credibility of Defendant witnesses:

3. (A) Defendant's witness Christopher Davis's testimony is contradicted by hundreds of the world's most eminent experts on the biological effects of non-ionizing radiation. His absolutist position on the safety of non-ionizing radiation is totally at odds with the scientific evidence. Much evidence is presented to prove this.

3. (B) Defendant's witnesses Mark Israel was not professionally qualified to testify about electromagnetic sensitivity (EHS) and the evidence he presented excluded virtually all of the important scientific evidence that confirms EHS. Much evidence is presented to prove this.

4. Complainant addresses the critical issues of how often the AMI meter transmits.

5. Complainant addresses the level of RF radiation Complainant is exposed to from the AMI meter.

6. The transient frequencies produced by the AMI meter due to its switched mode power supply, induce electromagnetic fields throughout the Complainant's or any other residence.

7. The Defendant relies on FCC guidelines but the FCC is a "captured agency, serving the wireless industry. ~~The EPA acknowledges that FCC guidelines do not protect from chronic exposure to non-ionizing radiation.~~

8. Melatonin: The Complainant's chronic insomnia became much worse after the AMI meter was installed on a neighbor's adjoining wall. Complainant was diagnosed with a sleep/wake cycle disorder. Melatonin is the key mediator of the sleep/wake cycle and necessary for sleep. Studies are presented showing that exposure to RF radiation (as emitted by the AMI meter) and other types of electromagnetic fields (as are induced by the AMI switch mode power supply) inhibit melatonin production. Thus they could interfere with normal sleep.

~~9. An investigative journalism article from the Nation magazine exposes the fact that the wireless industry has engaged in a massive disinformation campaign to hide the danger of cell phone radiation. That included, funding industry friendly research, hiding negative research results, "war-gaming" research that shows harm, discrediting scientists whose views conflict with the industry's position and co-opting of regulatory agencies. One conclusion of the article is that "Billions of cell phone users have been subjected to a public health experiment without informed consent."~~

10. Radiation Exposure from Smart Meters vs Cell Phones - smart meters by virtue of whole body radiation exposure and their being on 24/7, expose people to between 50 – 160 times the radiation of a cell phone.

~~11. Two of the largest and most comprehensive studies on cell phone radiation find similar results. Both find that rats exposed to cell phone radiation develop gliomas and schwannomas (and none of the control rats develop these tumors). The studies are the U.S. National Toxicology (NTP) 10year, 25 million dollar study (and an independent analysis of it) and the Ramazzini Institute study.~~

~~12. Dr. Anthony B. Miller, advisor to the WHO and epidemiologist for the IARC declares that, cell phone radiation is a carcinogen.~~

13. Fire Hazard– The Defendant’s AMI meter is a potential fire hazard, unlike the original Analog meters. It can burst into flame from a power surge. Defendant’s own witness testifies that the AMI meter is not designed as a protection device, it can’t be remotely shut off if it overheats, and response time in a meter emergency is poor.

14. Opt –Out – 9 States currently offer Opt Out options for smart meters.

Complainant states that this is consistent with the idea that where there is risk, there must be choice.

Complainant disputes Defendant’s claim that their smart meter deployment policy is based on PA Act 129 (Transcript p. 232, 20-24). Complainant shows that Act

129 was intended to make smart meter deployment voluntary. Opt out bills in PA have been thwarted for 6 years by one committee chairman.

15. Defendant takes the position that Act 129 does not have an Opt out provision. However Act 129 as written didn't need an Opt out, because it was clearly intended to be an Opt IN (ie. voluntary) regulation. Evidence is presented to that effect.

~~16. Complainant has a disability covered by the Americans with Disabilities Act and claims reasonable accommodation.~~

16. The Defendant presents their AMI meter as mandatory. However both federal and state regulations about smart meters clearly intended use of those meters to be VOLUNTARY. Evidence is presented to confirm this. The PA PUC also confirms that smart meters are voluntary. Evidence is presented to that effect.

~~17. Opt out fees are not justified – Smart meters cost much more than Analog meters and don't last anywhere near as long as Analog meters.~~

States which offer Opt out have not suffered any hardship.

18. The Castle Doctrine is invoked by complainant: “Persons residing in or visiting this Commonwealth have a right to expect to remain unmolested within their homes or vehicles”

19. Is the Defendant providing safe service? Defendant is mandated by law to “maintain adequate, efficient, safe, and reasonable service and facilities”.....

Complainant declares that “SAFE” in general does not mean safe for those who are hypersensitive sensitive (EHS).

20. Nuremberg Code - Placing millions of smart meters on homes (with no safety studies) without consent of the populace constitutes an illegal experiment on a population and is a violation of the Nuremberg Code. Complainant asserts that, where there is risk, there must be choice.

21. May a corporation compel an individual to purchase and place on their residence, a product that emits radiation which hundreds of independent scientists worldwide have declared to be unsafe? Or to be generous, a radiation about which there is heated debate among scientists about its safety? May a corporation compel an individual with a disability, in this case, electromagnetic hypersensitivity, (EHS) to purchase and have on his residence and/or a residence that adjoins it, an AMI meter that exposes him 24/7 to RF microwave radiation and other types of electromagnetic fields?

III Argument

Complainant is electromagnetically hypersensitive (EHS) and has been for many years. He has suffered from chronic insomnia which has been severely exacerbated since the Defendant's AMI smart meter was installed on the house next to his, which shares an adjoining wall. (Complainant exhib. 1, 1B, 1C, 2, 2B, 3.) (Transcript p. 12, 11-25, p.13-1-7, p. 121,9-25, p. 122, 1-7)

~~Electromagnetic sensitivity is a disability under the American's with Disabilities Act. (Complainant exhib 4)~~

~~<https://www.access-board.gov/research/completed-research/indoor-environmental-quality/introduction>~~

~~"The Board recognizes that multiple chemical sensitivities and electromagnetic sensitivities may be considered disabilities under the ADA if they so severely impair the neurological, respiratory or other functions of an individual that it substantially limits one or more of the individual's major life activities. The Board~~

~~plans to closely examine the needs of this population, and undertake activities that address accessibility issues for these individuals.”~~

EHS is also widely recognized around the world (see many exhibits under “Mark Israel is not a reliable witness” further in this document.)

Complainant testified during the March 9th hearing (Transcript – p.12, 11-17) that when the smart meter was installed on the property next door, his chronic insomnia became much more severe, to the point that he was sleeping just two or three hours a night thereafter, and at one point he thought he was not going to survive. He further testified that after the AMI meter was installed he had long periods when he simply couldn't concentrate. He stated that he is a Chief Editor of a very large website and uses his intellectual processes constantly, but that all of a sudden, he had to struggle to concentrate. (Transcript p.13, 2-7). He also stated that he took extraordinary measures to try to block some of the radiation from the AMI meter including putting aluminum foil and mylar on some walls of the his home and sleeping in a Mylar poncho. (Transcript p 12, 19-25).

The Complainant testified in court that, using a handheld meter, he detected an RF transmission from the neighbor's smart meter every seven to twelve seconds (Transcript p.242, 5-7). Complainant's witness William Bathgate testified that, using a spectrum analyzer, he found that this model smart meter transmits every 4-

10 seconds. (Transcript p.97, 11-17). While the Defendant had asserted that their meter only emits radiation 85 seconds a day, the Complainant's witness, William Bathgate, testified that the AMI meter could emit microwave bursts up to thousands of times a day in its attempt to communicate with other meters in the area which are part of the Defendant's "mesh network" of message management.

In his original complaint, Complainant stated that the Defendant's AMI meter emits radio frequency (RF) radiation 24 hours a day, 7 days a week and that this constant exposure to microwave radiation has been associated with adverse health effects ranging from insomnia and concentration deficits to cancer. He produced various documents to prove these assertions.

The Complainant's witness William Bathgate also testified that in addition to the microwave radiation emitted by Defendant's AMI meter, the meter also created high frequency voltage transients due to its "switched mode power supply" (SMPS) and that these voltage transients were superimposed on the house wiring, creating electromagnetic fields that extended into the rooms of any home with an AMI meter.). (Hearing Transcript p.56 1-5, p.59, p.62, 22-25, p.65,66 -20-24 and Complainant Exhib 26).

Thus the Complainant, who asserts he is electromagnetically hypersensitive (EHS), is simultaneously exposed to both the AMI meter's direct microwave radiation and the electromagnetic field created by the transient currents it produces.

Why Cell Phone Radiation is Used as Evidence

Throughout the presentation of evidence in this case, studies about cell phone radiation are cited. This occurs for two reasons. First, both cell phones and AMI smart meters use non- ionizing radiation in the radio frequency (RF) range of around 900 MHz, so they are of similar frequency. Second, there are no long term, independent studies of the safety of smart meters. Therefore the closest means of assessing the safety of AMI RF emissions is by evaluating the safety of cell phone emissions. Also, the position of the Defendant is that low level non- ionizing radiation is harmless. Defendant's expert witness Christopher Davis stated at the hearing that he would permit a five-year-old child to sleep with a cell phone in transmit mode next to its head. That assertion that low level non- ionizing radiation is harmless must apply equally to smart meters and cell phones.

(Transcript p.280, 17-20). Transcript p.95, 8-12)

[https://www.signalbooster.com/pages/what-are-the-cellular-frequencies-of-cell-phone-carriers-in-usa-canada-\)](https://www.signalbooster.com/pages/what-are-the-cellular-frequencies-of-cell-phone-carriers-in-usa-canada-)

But there are differences

Having said that, there are some differences between cell phones and smart meters. Smart meters emit radiation 24/7 while cell phones emit radiation only while in use. The AMI smart meter uses a switched mode power supply which places transient frequencies on the house wiring, generating electromagnetic fields which radiate into the house. ~~Cell phones are not connected to the house wiring and so don't generate those transients.~~ AMI meters expose individuals to full body radiation, unlike cell phones which primarily expose the head. (although this is self evident it is also mentioned in Complainant's exhib. 15). Lastly, the Defendant's AMI meter is placed on homes without the occupant having a choice. Whether one uses a cell phone, or how long to use it, is entirely a matter of choice.

Credibility of Complainant

Complainant asserted that he has suffered from Electromagnetic Sensitivity, (also called Electromagnetic Hypersensitivity) (EHS) for some 30 years and that after the Defendant's AMI meter was placed on his neighbors's wall, which adjoins his residence, that Complainant's insomnia became so severe as to be life

threatening.(Transcript p.6, 14-25) (Transcript p.12, 10-18) He also alleged that since the AMI meter was installed he has had periods where he has to struggle to concentrate. Complainant has stated that he works as a Chief Editor of a journal and normally has excellent mental clarity. (Transcript p.13, 2-7).

Since the complainant is not seeking monetary rewards, and waging the legal battle against the Defendant requires a great physical and mental effort, plus financial expense, and may lead to months or years of litigation, why would he pursue this if he was not sincere in asserting that he suffers from electromagnetic hypersensitivity (EHS), that his insomnia is dangerously aggravated by the AMI meter, and that he suffers from concentration difficulty, since installation of the Defendant's AMI meter?

Reliability of Defendant's Witnesses

Re: Christopher Davis is not a reliable witness

Due to Christopher Davis's cavalier comments about cell phone radiation in his videos and in court, his absolutist views about the safety of cell phone radiation which are contradicted by evidence worldwide, and his statements in the Complainant's hearing, which were shown to be inaccurate, Complainant urges the

court to consider his testimony less than reliable. Evidence for this conclusion is will be found in the testimony and exhibits below:

Christopher Davis's Position on non- ionizing radiation at odds with experts worldwide

During the March 9th hearing in this case, Defendant's witness Christopher Davis asserted that he would permit a five-year-old child to sleep all night with a cell phone in transmit mode next to its head. (Hearing Transcript p. 280-17-21.)

During the March 9th hearing Christopher Davis also acknowledged that he made videos in one of which he commented on why studies find that people using cell phones on the right side, got brain tumors on the right. In the video he stated "People don't remember which side they use their cell phones on". He confirmed that statement during the hearing. (Hearing Transcript- P. 273- 20-20, P. 275-5-14).

In one of his videos he commented on the scientists who find harm from cell phone radiation, saying "There are scientists out there who want to keep this issue alive because they get more money for research." That's how he dismissed the entire body of work that shows harm from cell phone radiation. (Hearing Transcript P.275 – 15-23.)

~~Christopher Davis' dismissive attitude about the safety of cell phone radiation is directly at odds with the majority of the independent research including the most recent National Toxicology Program (NTP) 10-year \$25 million study.~~

~~Among the most recent, confirmative and respected studies on cell phone radiation is the **U.S. National Toxicology (NTP) 10-year, 25 million dollar study** (Complainant's exhibit 11 and see links below) which found that rats exposed to cell phone radiation (which is similar to AMI meter radiation) developed Gliomas (brain cancer) and Schwannomas (cancer of the heart). It also found that none of the control rats developed those tumors. Researchers considered those results so important that they originally released preliminary results publicly. Subsequent to that, **an independent panel reviewed the NTP study** and confirmed the accuracy of its results and recommended even stronger warnings, requesting that the findings be reclassified from "some evidence" to "clear evidence" of carcinogenic activity.~~

~~Furthermore, the **Ramazzini Institute** in Italy recently concluded its own very large study on the effect of cell phone radiation, and they also found that rats exposed to cell phone radiation developed Schwannoma tumors (heart cancer) as well as Glial cell tumors. **The Ramazzini Institute results were consistent with those obtained in the NTP study.**~~

~~**Note to the court:** Complainant's exhibit 11 contained links to those preliminary results of the NTP study from Microwave News, a long established and respected website. The defendant challenged the completeness of the Complainant's exhibit 11, and the court ruled to disallow it. The Complainant has repaired the **format** of his original exhibit 11, (though the facts were correct) and provides all the necessary links below. Whereas The NTP Study results are now quoted by scientists worldwide, Complainant requests the court to reconsider this evidence and admit the study conclusions into evidence.~~

~~**1. The report of the Independent Review of the NTP study from the website of the National Toxicology Program NTP:**~~

~~**Independent Review**~~

~~https://ntp.niehs.nih.gov/update/2018/4/cell_phone/index.html~~

~~**2. Conclusions of the NTP study from the website of the National Institute of Health.**~~

~~**NTP Study Conclusions**~~

~~<https://www.nih.gov/news-events/news-releases/high-exposure-radiofrequency-radiation-linked-tumor-activity-male-rats>~~

~~3. The full document of the Ramazzini Institute study, obtained directly from the Ramazzini Institute:~~

~~**Ramazzini Institute Study**~~

~~<file:///C:/Users/AlanH/Documents/Belpoggi Heart and Brain Tumors Base Station 2018.pdf>~~

~~<https://www.sciencedirect.com/science/article/pii/S0013935118300367>~~

~~Christopher Davis' views are also contradicted by the large Ramazzini Institute study which also found schwannomas after exposure to cell phone radiation (link below) (also mentioned in Complainant response to Christopher Davis Direct Testimony p8-10). The results of this study help further confirm the NTP study results.~~

~~**Ramazzini Institute Study**~~

~~<file:///C:/Users/AlanH/Documents/Belpoggi Heart and Brain Tumors Base Station 2018.pdf>~~

Christopher Davis's views are also totally at odds with the **230 scientists from 41 nations who petitioned the U.N** about the dangers of ionizing radiation, the

Internatio Complainant offers his exhibit 13, reporting on the International EMF Scientist Appeal wherein 220 scientists from 41 nations warn the Director General of the U.N. that non-ionizing radiation is hazardous.

<https://emfscientist.org/index.php/emf-scientist-appeal>

Christopher Davis' views are also at odds with the **EU Appeal signed by 180 scientists and doctors from 36 countries** calling for a moratorium on the 5G network and citing the dangers of RF non-ionizing radiation (Complainant's response to Christopher Davis's written testimony – pages 16-33 and link below).

<https://drive.google.com/file/d/0B14R6QNkmaXuelFrNWRQcThNV0U/view>

Davis' views also conflict with the International **Agency for Research in Cancer (IARC)** which labeled non-ionizing radiation a class 2B carcinogen.

Davis's views are at odds with the 29 independent experts on the biological effects of non- ionizing radiation from 10 countries who signed the **Bioinitiative 2012 Report based on 1800 new studies**, and the insurance industry, which has pulled out of the RF wireless market because they saw too much liability. ~~Hi views are also in conflict with those of Dr. Anthony B. Miller, another renowned expert in this specialized field.~~

Davis's views are contradicted by India's Rajasthan High Court AND their Supreme Court which rules that cell towers must be removed from near hospitals and schools due to the danger of non-ionizing RF radiation.

(See links to all of these exhibits below)

Scientist Appeal: <https://emfscientist.org/index.php/emf-scientist-appeal>

(Complainant Exhibit 13 and see documents below)

International EMF Scientist Appeal

**To: His Excellency Antonio Guterres, Secretary-General of the United Nations;
Honorable Dr. Tedros Adhanom, Director-General of the World Health Organization
Honorable Erik Solheim, Executive Director of the U.N. Environment Programme;
U.N. Member Nations**

International Appeal

Scientists call for Protection from Non-ionizing Electromagnetic Field

Exposure

We are scientists engaged in the study of biological and health effects of non-ionizing electromagnetic fields (EMF). Based upon peer-reviewed, published research, we have serious concerns regarding the ubiquitous and increasing exposure to EMF generated by electric and wireless devices. These include—but are not limited to—radiofrequency radiation (RFR) emitting devices, such as cellular and cordless phones and their base stations, Wi-Fi, broadcast antennas, smart meters, and baby monitors as well as electric devices and infra-structures used in the delivery of electricity that generate extremely-low frequency electromagnetic field (ELF EMF).

Scientific basis for our common concerns

Numerous recent scientific publications have shown that EMF affects living organisms at levels well below most international and national guidelines. Effects include increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both plant and animal life.

These findings justify our appeal to the United Nations (UN) and, all member States in the world, to encourage the World Health Organization (WHO) to exert strong leadership in

fostering the development of more protective EMF guidelines, encouraging precautionary measures, and educating the public about health risks, particularly risk to children and fetal development. By not taking action, the WHO is failing to fulfill its role as the preeminent international public health agency.

Inadequate non-ionizing EMF international guidelines

The various agencies setting safety standards have failed to impose sufficient guidelines to protect the general public, particularly children who are more vulnerable to the effects of EMF. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) established in 1998 the “Guidelines For Limiting Exposure To Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz)” . These guidelines are accepted by the WHO and numerous countries around the world. The WHO is calling for all nations to adopt the ICNIRP guidelines to encourage international harmonization of standards. In 2009, the ICNIRP released a statement saying that it was reaffirming its 1998 guidelines, as in their opinion, the scientific literature published since that time “has provided no evidence of any adverse effects below the basic restrictions and does not necessitate an immediate revision of its guidance on limiting exposure to high frequency electromagnetic fields . ICNIRP continues to the present day to make these assertions, in spite of growing scientific evidence to the contrary. It is our opinion that, because the ICNIRP guidelines do not cover long-term exposure and low-intensity effects, they are insufficient to protect public health.

The WHO adopted the International Agency for Research on Cancer (IARC) classification of extremely low frequency electromagnetic field (ELF EMF) in 2002 and radiofrequency radiation (RFR) in 2011 . This classification states that EMF is a possible human carcinogen (Group 2B). Despite both IARC findings, the WHO continues to maintain that there is insufficient evidence to justify lowering these quantitative exposure limits.

Since there is controversy about a rationale for setting standards to avoid adverse health effects, we recommend that the United Nations Environmental Programme (UNEP) convene and fund an independent multidisciplinary committee to explore the pros and cons of alternatives to current practices that could substantially lower human exposures to RF and ELF fields. The deliberations of this group should be conducted in a transparent and impartial way. Although it is essential that industry be involved and cooperate in this process, industry should not be allowed to bias its processes or conclusions. This group should provide their analysis to the UN and the WHO to guide precautionary action.

Collectively we also request that:

1. children and pregnant women be protected;
2. guidelines and regulatory standards be strengthened;
3. manufacturers be encouraged to develop safer technology;
4. utilities responsible for the generation, transmission, distribution, and monitoring of electricity maintain adequate power quality and ensure proper electrical wiring to minimize harmful ground current;

5. the public be fully informed about the potential health risks from electromagnetic energy and taught harm reduction strategies;
6. medical professionals be educated about the biological effects of electromagnetic energy and be provided training on treatment of patients with electromagnetic sensitivity;
7. governments fund training and research on electromagnetic fields and health that is independent of industry and mandate industry cooperation with researchers;
8. media disclose experts' financial relationships with industry when citing their opinions regarding health and safety aspects of EMF-emitting technologies; and
9. white-zones (radiation-free areas) be established.

IARC: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5504984/> Complainant

Exhibit 17. IARC classifies electromagnetic radiation as a possible carcinogen.

International Agency for Research on Cancer



PRESS RELEASE
N° 208

31 May 2011

IARC CLASSIFIES RADIOFREQUENCY ELECTROMAGNETIC FIELDS AS POSSIBLY CARCINOGENIC TO HUMANS

Lyon, France, May 31, 2011 -- The WHO/International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields as [possibly carcinogenic to humans \(Group 2B\)](#), based on an increased risk for [glioma](#), a malignant type of brain cancer¹, associated with wireless phone use.

Background

Over the last few years, there has been mounting concern about the possibility of adverse health effects resulting from exposure to radiofrequency electromagnetic fields, such as those emitted by wireless communication devices. The number of mobile phone subscriptions is estimated at [5 billion globally](#).

From [May 24–31 2011, a Working Group of 31 scientists from 14 countries has been meeting at IARC in Lyon, France, to assess the potential carcinogenic hazards from exposure to radiofrequency electromagnetic fields](#). These assessments will be published as Volume 102 of the IARC *Monographs*, which will be the fifth volume in this series to focus on physical agents, after [Volume 55](#) (Solar Radiation), [Volume 75](#) and [Volume 78](#) on ionizing radiation (X-rays, gamma-rays, neutrons, radio-nuclides), and [Volume 80 on non-ionizing radiation \(extremely low-frequency electromagnetic fields\)](#).

The IARC Monograph Working Group discussed the possibility that these exposures might induce long-term health effects, in particular an increased risk for cancer. This has relevance for public health, particularly for users of mobile phones, as the number of users is large and growing, particularly among young adults and children.

The IARC Monograph Working Group discussed and evaluated the available literature on the following exposure categories involving radiofrequency electromagnetic fields:

- occupational exposures to radar and to microwaves;
- environmental exposures associated with transmission of signals for radio, television and wireless telecommunication; and
- personal exposures associated with the use of wireless telephones.

International experts shared the complex task of tackling the [exposure data](#), the [studies of cancer in humans](#), the [studies of cancer in experimental animals](#), and the [mechanistic and other relevant data](#).

¹ [237 913 new cases of brain cancers](#) (all types combined) occurred around the world in 2008 (gliomas represent 2/3 of these). Source: [Globocan 2008](#)

Scientist 5G appeal:

180 Scientists from 35 countries warn of danger from the 5th generation of wireless technology and also from non-ionizing radiation in general.

file:///C:/Users/Alanh/Downloads/170913a_Scientist%205G%20appeal.pdf

Scientists warn of potential serious health effects of 5G

September 13, 2017

We the undersigned, more than 180 scientists and doctors from 35 countries, recommend a moratorium on the roll-out of the fifth generation, 5G, for telecommunication until potential hazards for human health and the environment have been fully investigated by scientists independent from industry. 5G will substantially increase exposure to radiofrequency electromagnetic fields (RF-EMF) on top of the 2G, 3G, 4G, Wi-Fi, etc. for telecommunications already in place. RF-EMF has been proven to be harmful for humans and the environment.

5G leads to massive increase of mandatory exposure to wireless radiation

5G technology is effective only over short distance. It is poorly transmitted through solid material. Many new antennas will be required and full-scale implementation will result in antennas every 10 to 12 houses in urban areas, **thus massively increasing mandatory exposure.**

With "[the ever more extensive use of wireless technologies.](#)" nobody can avoid to be exposed. Because on top of the increased number of 5G-transmitters (even within housing, shops and in hospitals) according to estimates, "[10 to 20 billion connections](#)" (to refrigerators, washing machines, surveillance cameras, self-driving cars and buses, etc.) will be parts of the Internet of Things. All these together can cause a substantial increase in the total, long term RF-EMF exposure to all EU citizens.

Harmful effects of RF-EMF exposure are already proven

[More than 230 scientists from 41 countries](#) have expressed their "serious concerns" regarding the ubiquitous and increasing exposure to EMF generated by

electric and wireless devices already before the additional 5G roll-out. They refer to the fact that "numerous recent scientific publications have shown that

EMF affects living organisms at levels well below most international and national guidelines". Effects include increased cancer risk, cellular stress, increase in harmful free radicals, genetic damages, structural and functional changes of the reproductive system, learning and memory deficits, neurological disorders, and negative impacts on general well-being in humans. Damage goes well beyond the human race, as there is growing evidence of harmful effects to both [plants](#) and [animals](#).

After the scientists' appeal was written in 2015 additional research has convincingly confirmed serious health risks from RF-EMF fields from wireless technology. The world's largest study (25 million US dollar) [National Toxicology Program \(NTP\)](#), shows statistically significant increase in the incidence of *brain and heart cancer* in animals exposed to EMF below the ICNIRP (International Commission on Non-Ionizing Radiation Protection) guidelines followed by most countries. These results support results in human epidemiological studies on RF radiation and brain tumour risk. [A large number of peer-reviewed scientific reports](#) demonstrate harm to human health from EMFs.

The International Agency for Research on Cancer (IARC), the cancer agency of the World Health Organization (WHO), in 2011 concluded that EMFs of frequencies 30 KHz – 300 GHz are possibly [carcinogenic to humans \(Group 2B\)](#). However, new studies like the NTP study mentioned above and several epidemiological investigations including the latest studies on mobile phone use and brain cancer risks [confirm that RF-EMF radiation is carcinogenic to humans](#).

The [EUROPA EM-EMF Guideline 2016](#) states that "there is strong evidence that *long-term exposure to certain EMFs is a risk factor for diseases* such as certain cancers, Alzheimer's disease, and male infertility...Common EHS (electromagnetic hypersensitivity) symptoms include headaches, concentration difficulties, sleep problems, depression, lack of energy, fatigue, and flu-like symptoms."

An increasing part of the European population is affected by ill health symptoms that have for many years been linked to exposure to EMF and wireless radiation in the scientific literature. The International [Scientific Declaration on EHS & multiple chemical sensitivity \(MCS\)](#), Brussels 2015, declares that: "In view of our present scientific knowledge, we thereby stress all national and international bodies and institutions...to recognize EHS and MCS as true medical conditions which acting as sentinel diseases may create a *major*

*public health concern in years to come worldwide i.e. in all the countries implementing unrestricted use of electromagnetic field-based wireless technologies and marketed chemical substances... **Inaction is a cost to society** and is not an option anymore... we unanimously acknowledge this serious hazard to public health...that major primary *prevention measures are adopted and prioritized, to face this worldwide pan-epidemic in perspective.*"*

Precautions

The [Precautionary Principle](#) (UNESCO) was [adopted by EU 2005](#): " *When human activities may lead to morally unacceptable harm that is scientifically plausible but uncertain, actions shall be taken to avoid or diminish that harm.*"

[Resolution 1815](#) (Council of Europe, 2011): "Take all reasonable measures to reduce exposure to electromagnetic fields, especially to radio frequencies from mobile phones, and particularly the exposure to children and young people who seem to be most at risk from head tumours...Assembly strongly recommends that the ALARA (as low as reasonably achievable) principle is applied, covering both the so-called thermal effects and the athermic [non-thermal] or biological effects of electromagnetic emissions or radiation" and to "improve risk-assessment standards and quality".

The [Nuremberg code](#) (1949) applies to all experiments on humans, thus including the roll-out of 5G with new, higher RF-EMF exposure. All such experiments: "should be based on previous knowledge (e.g., an expectation derived from animal experiments) that justifies the experiment. No experiment should be conducted, *where there is an a priori reason to believe that death or disabling injury will occur*; except, perhaps, in those experiments where the experimental physicians also serve as subjects." (Nuremberg code pts 3-5). Already published scientific studies show that there is "a priori reason to believe" in real health hazards.

The [European Environment Agency](#) (EEA) is warning for "Radiation risk from everyday devices" in spite of the radiation being [below the WHO/ICNIRP standards](#). EEA also concludes: "There are many examples of the failure to use the precautionary principle in the past, which have *resulted in serious and often irreversible damage to health and environments*...harmful exposures can be widespread before there is both 'convincing' evidence of harm from long-term exposures, and biological understanding [\[mechanism\]](#) of how that harm is caused."

"Safety guidelines" protect industry – not health

The current ICNIRP "safety guidelines" are obsolete. All proofs of harm mentioned above arise although the radiation is [below the ICNIRP "safety](#)

[guidelines](#)". Therefore new safety standards are necessary. The reason for the misleading guidelines is that "[conflict of interest of ICNIRP members](#) due to their *relationships with telecommunications or electric companies* undermine the impartiality that should govern the regulation of Public Exposure Standards for non-ionizing radiation... To evaluate cancer risks it is necessary to include scientists with competence in medicine, especially oncology."

The current ICNIRP/WHO guidelines for EMF are based on the obsolete hypothesis that "The critical effect of RF-EMF exposure relevant to human health and safety is [heating of exposed tissue](#)." However, scientists have proven that many different kinds of *illnesses and harms are* [caused without heating](#) ("non-thermal effect") at radiation levels well below ICNIRP guidelines.

We urge the EU:

- 1) To take all reasonable measures to halt the 5G RF-EMF expansion until independent scientists can assure that 5G and the total radiation levels caused by RF-EMF (5G together with 2G, 3G, 4G, and WiFi) will not be harmful for EU-citizens, especially infants, children and pregnant women, as well as the environment.

- 2) To recommend that all EU countries, especially their radiation safety agencies, follow Resolution 1815 and inform citizens, including, teachers and physicians, about health risks from RF-EMF radiation, how and why to avoid wireless communication, particularly in/near e.g., daycare centers, schools, homes, workplaces, hospitals and elderly care.

- 3) To appoint immediately, without industry influence, an EU task force of independent, truly impartial EMF-and-health scientists with no conflicts of interest¹ to re-evaluate the health risks and:
 - a) To decide about new, safe “maximum total exposure standards” for all wireless communication within EU.
 - b) To study the total and cumulative exposure affecting EU-citizens.
 - c) To create rules that will be prescribed/enforced within the EU about how to avoid exposure exceeding new EU “maximum total exposure standards” concerning all kinds of EMFs in order to protect citizens, especially infants, children and pregnant women.

- 4) To prevent the wireless/telecom industry through its lobbying organizations from persuading EU-officials to make decisions about further propagation of RF radiation including 5G in Europe.

5) To favor and implement wired digital telecommunication instead of wireless.

We expect an answer from you no later than **October 31, 2017** to the two first mentioned signatories about what measures you will take to protect the EU-inhabitants against RF-EMF and especially 5G radiation. This appeal and your response will be publicly available.

Respectfully submitted,

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~~Bioinitiative 2012:~~ ~~<http://www.bioinitiative.org/>~~

~~29 experts from 10 nations update the original Bioinitiative 2007 for the year 2012 and include 1800 new studies showing harm from non-ionizing radiation. The conclusions from this report are reproduced elsewhere in this brief.~~

A Coming Storm for Wireless – Gloria Vogel -Insurance industry consultant states in this article that **all insurers including Lloyds of London have left the Radio Frequency radiation market** as it entails too much liability.

(Complainant's exhib. 12)

A Coming Storm For Wireless?

By [Gloria Vogel](#)

Thursday, July 27, 2017

<http://www.talkmarkets.com/content/stocks--equities/a-coming-storm-for-wireless?post=143501>

- Increased RF injuries may result from the proliferation of antennas to support expanding wireless activity.
- As workers and the medical community begin to better understand those RF injuries, the wireless industry could face increased RF safety awareness issues.
- Insurers no longer provide RF exposure coverage, so wireless providers may find property owners less willing to renew existing leases, or to lease space for antennas.
- An RF safety protocol could help protect workers and the financial interests of the wireless ecosystem.

Jobsite hazards, both seen and unseen, exist everywhere in our nation. All but a few of these safety challenges can be mitigated when corporations or industries decide to address them properly. Imagine an enterprise sector that utilizes a known human hazard and knowingly turns a blind eye to the health and safety of third party workers. Yet, this is exactly the situation surrounding radio frequency (RF) radiation within the wireless industry. Wireless carriers have long hidden behind the veil of federal compliance to avoid implementing a meaningful RF safety solution.

To date, the wireless industry has managed to stay relatively unscathed financially from injuries related to RF radiation. This is largely due to the medical community's ignorance of the effects of RF injuries, either cognitive or physical. If experts in the medical community have no understanding of RF radiation, how can a worker realize they have been injured when RF radiation is invisible, odorless, and tasteless? Workers have no way of connecting their overexposure incident with the manifestation of symptoms, which may not arise immediately.

An Invisible Threat with Detrimental Impacts

The risk of RF radiation overexposure from transmitting antennas has long been recognized as a human health hazard and is identified as such by the FCC. RF radiation hazards from transmitting antennas can have thermal or

cognitive/psychological injuries. Thermal injuries result in heating of tissue.

Cognitive injuries manifest as memory loss, mood disorders, sleep disorders, and impaired or diminished cognitive function.

Global Insurers Withdraw from RF Exposure Coverage

In 2013, [AM Best](#), the leading insurance rating agency, estimated that 250,000 workers are overexposed to radiation annually at wireless antenna sites. Since then, global insurers have chosen to exclude RF coverage from their policies. **The last global insurer to exit the RF exposure market was Lloyd's of London in 2015.** The ramifications of insurance firms excluding RF coverage are considerable. Without insurance coverage, wireless providers may find property owners less willing to lease space for antennas and current property owners may be less willing to renew existing leases. Without adequate insurance, the risk to the property owners far outweighs the lease revenue they receive. A single uninsured RF injury claim can wipe out years of lease revenue and expose the property owner to expensive litigation costs.

In Harm's Way

Historically, antennas have been placed at inaccessible, remote, or fenced locations to prevent accidental RF exposure. However, as the demand for better service has

increased, antennas have continued to encroach into urban and residential areas. Wireless carriers now install antennas in the sides of buildings, on rooftops, or in faux-chimneys, many of which are disguised to the untrained eye. As such, a painter, roofer, or other contractor performing routine maintenance on the building is placed in immediate danger due to close proximity to transmitting antennas while remaining unaware of any potential hazard.

The Unaware Medical Community

The medical community is ill-prepared to handle RF overexposure cases since physicians are neither educated nor trained to recognize the symptoms of RF radiation overexposure. Furthermore, they lack the knowledge to treat overexposure injuries. RF overexposure injuries resemble a variety of other ailments and therefore are commonly misdiagnosed. To the insurance industry, these injuries are classified as “Incurred but Not Reported” and are a significant factor in their decision to exclude RF exposure coverage.

Preventing “The Next Asbestos”

Through calculated tactics, legal actions, and lobbying, the wireless carriers continue the false narrative that there are no injuries or risks to unsuspecting workers near RF transmitting antennas. As workers and the medical community

begin to recognize RF injuries, claims will accumulate as the plaintiff's bar becomes involved, and third-party litigation multiplies.

Fortunately, the industry still has time to address this issue responsibly by adopting a comprehensive RF safety protocol which will protect workers and the financial interests of the wireless ecosystem – including the major players: AT&T (NYSE:[T](#)), Verizon (NYSE:[VZ](#)), T-Mobile (NASDAQ:[TMUS](#)), and Sprint (NYSE:[S](#)).

Gloria Vogel is currently an Adjunct Professor at NYU-SPS. She also teaches in the CPCU program. She was previously a Senior Vice President at Drexel Hamilton, and a Managing Director at Vogel Capital Management, an investment and consulting firm based in New York City. Gloria is a financial analyst and has been a consultant to the insurance industry with many years of experience following the insurance sector. She was the U.S. investor relations contact at Swiss Re, where she also performed credit analysis on insurer counterparty risks, and reviewed private equity/venture capital investments. Earlier, she was an All-Star equity research insurance analyst at several major Wall Street investment banks.

India's highest courts rule order wireless radiation a danger



IN BRIEF: BSY's son Vijayendra excluded NIA wing to target Maoists Naidu rejects impeachment bid TCS first Indian \$100 bn co Kal

Home / Nation

No mobile towers near schools, hospitals, directs Raj HC



Jaipur, Nov 27, 2012 (PTI);, CREATED: NOV 27 2012, 21:57PM IST | UPDATED: NOV 27 2012, 21:57PM IST

~~(The Rajasthan High Court supported by the Supreme Court holds that there is danger from cell phone radiation—Orders moving of Cell Towers—Article below)~~

<https://www.deccanherald.com/content/294813/no-mobile-towers-near-chools.html>

Holding mobile towers as a health hazard, the Rajasthan High Court today directed telecom service providers operating in the state to remove within two months their towers falling in the vicinity of schools, hospitals and play grounds.

The division bench of Chief Justice Arun Mishra and Justice N K Jain Senior held that radiations emitted from mobile phones and mobile base towers are "hazardous to children and patients", as accepted by the inter-ministerial committee of Central Government, and needs relocation from school, colleges, hospitals and play grounds immediately.

The order, running into more than 200 pages, has asked all the mobile companies of the country having towers erected in Rajasthan to relocate them away from schools, hospitals, colleges and playgrounds within two months.

It also asked them to relocate the towers from a periphery of 500 meters from prisons, and those falling in 100 meter distance of ancient and archaeological heritage monuments.

Earlier on September 7, the Supreme Court had refused to interfere with a Rajasthan High Court's interim order to the state government to remove mobile phone towers from near the schools, hospitals and densely populated localities.

Today the court said, "We have received a large number of communications from the state and across the country that the mobile tower radiations are harmful and even the inter-ministerial committee of Central Government in its meeting in May this year has held so.

"Even the Supreme Court has held that the radiations are hazardous and supported our view while rejecting the appeal filed against our interim order for relocation of towers away from schools."

"Even the Supreme Court has held that the radiations are hazardous and supported our view while rejecting the appeal filed against our interim order for relocation of towers away from schools."

The bench relied upon the inter-ministerial meeting of Central government of May 2012, wherein it was emphasised that the electromagnetic radiations emitted from cellphone as well as towers erected for mobile communication have both thermal and non-thermal effect i.e. these waves cook human tissues just like a microwave oven if the body is exposed to these radiation for long.

The bench has asked the state government and mobile companies to follow the norms and guidelines, prescribed and fixed by the inter-ministerial committee in its meeting dated May 31, 2012.

Besides all, the mobile towers in near the prohibited areas of school, hospitals etc have to be relocated within two months, it said.

"It has further been held on the basis of report of inter-ministerial committee that the radiations are harmful and causes cancer, brain tumour, digestive disorder, tachycardia, and other diseases and disorders in human body," said Prateek Kasliwal counsel for petitioner Justice (rtd) I S Israni and others.

The court also dismissed petitions filed by the two unions of GSM and CDMA telecom service providers namely COAI and AUSPI.

The court said that a mobile phone should not be used for more than 20-25 minutes per day but the consumers are not being made aware of this fact by the mobile manufacturing as well as service providing company, and for which mass awareness is required.

The bench has also directed that the radiation emission level of mobile phones also to be made public as suggested by department of technology, the counsel said.

COAI and AUSPI had filed two separate petitions challenging 2G and 3G Mobile tower/ Pole By-laws, 2012 framed by state government in September this year.

It was contended by senior advocate Gopal Subramaniam on behalf of the unions that the by-laws amount to restraining the livelihood, and it was also unjust as the state government is not competent to frame law as telecommunication is not a subject matter on which a state can legislate law.

Brushing aside the contentions the division bench upheld the by-laws stating that the same are regulatory measures and even the by-laws have been framed after an advisory came to be issued by the Central government based on the recommendations made by the inter-ministerial committee.

Such regulations framed by the government for seeking prior permission and to place restriction on installation of mobile towers and base antennas at some specified places cannot be said to be illegal and ultra vires, the judges said.

"For installation of towers as per Union of India itself, the permission is required to be sought from Local Municipal bodies as such they have all right to regularise their installation and put a restrain for installation at some places," says court order.

~~Mr. Barrie Trower – British physicist and microwave weapons expert who worked for the Royal Navy and the British Secret Service. In this video he talks about the health effects of WiFi and other forms of microwave radiation which children are exposed in schools. (main points are made from beginning of video up to just past the halfway mark.)~~

~~VIDEO <https://www.youtube.com/watch?v=z99-SzoXZdY>~~

~~“Anyone who puts Wifi into a school should be locked up for the rest of their life.”~~

How many times does the AMI meter transmit?**Defendant's witness admits to more frequent transmissions:**

Defendant witness Christopher Davis asserted in his Direct Testimony that Defendant's AMI meter only signaled 84 seconds a day, implying 84 times a day. (P.7 of his Direct Testimony). He subsequently acknowledged that the smart meter emits 1,720 transmissions per day, which is once every 1.2 minutes. (Transcript: p. 262 -11,12). **Therefore, even by Christopher Davis' estimate the Complainant is exposed to microwave radiation from the AMI meter every minute day and night.**

Complainant's expert witness, Mr. Bathgate testified that the AMI smart meter could emit every 4 to 10 seconds, which is much more frequent. (Hearing Transcript -p.97- 11-16) Thus the complainant is exposed to microwave radiation at best, every 10 seconds, or 8640 times a day (day and night). Also, Complainant testified that, using a handheld meter in his residence, he detected an impulse from the smart meter next door (his neighbor's house) every seven to twelve seconds. (Transcript p.242, 5-7)

Harmonics / Transient Frequencies

Christopher Davis also asserted that the AMI meter did not produce harmonics above what was coming into the meter (p.11 of Davis's Direct testimony).

However Complainant's witness Mr. Bathgate, testified that the AMI meter, due to its switched mode power supply and its lacking an EMC filter, allows Transients/ Harmonics onto the wiring of the house. He further testified that these Transients/ Harmonics create an electromagnetic field that can penetrate walls and they extend 3-4 feet into a room exposing the occupants to the field. (Hearing Transcript p.56 1-5, p.59, p.62, 22-25, p.65,66 -20-24 and Complainant Exhib 26).

Exposure from AMI smart meter

Christopher Davis stated at the hearing:

“Well, actually, the average exposure from the PPL meters is about 16 times smaller, even under the tiny value that's advocated by the Bioinitiative.”
(Hearing Transcript p.276, 17-20). ----

However, the BioInitiative Report 2012 recommends a safe level of RF radiation at 0.3 nanowatts to **0.6 nanowatts per square centimeter** as a reasonable,

precautionary action level for chronic exposure to pulsed Radio Frequency Radiation. (Bioinitiative Report Defining A New 'Effect Level' For RFR)

<http://www.bioinitiative.org/conclusions/>

Complainant measured RF radiation in his house after the neighbor's AMI meter was installed and found it went up to: 0.18 w/m², which is equal to **18,000 nanowatts per square centimeter**. That is many thousands of times higher than the 0.6 nanowatts the BioInitiative report (2012) considers safe for chronic exposure.

Note: Complainant took his readings at a point in his residence farthest from the AMI meter. (Alan Schmukler responds to Direct Testimony of Cristopher Davis p.3-4)

BIOINITIATIVE REPORT

<http://www.bioinitiative.org/conclusions/>

DEFINING A NEW 'EFFECT LEVEL' FOR RFR

On a precautionary public health basis, a reduction from the BioInitiative 2007 recommendation of 0.1 uW/cm² (or one-tenth of a microwatt per square centimeter) for cumulative outdoor RFR down to something three orders of magnitude lower (in the low nanowatt per square centimeter range) is justified.

A scientific benchmark of 0.003 uW/cm² or three nanowatts per centimeter squared for ‘lowest observed effect level’ for RFR is based on mobile phone base station-level studies. **Applying a ten-fold reduction to compensate for the lack of long-term exposure (to provide a safety buffer for chronic exposure, if needed) or for children as a sensitive subpopulation yields a 300 to 600 picowatts per square centimeter precautionary action level. This equates to a 0.3 nanowatts to 0.6 nanowatts per square centimeter as a reasonable, precautionary action level for chronic exposure to pulsed RFR.**

FCC Guidelines

Christopher Davis referenced the FCC during the hearing (and also in his Direct Testimony p.8) as an authoritative source for safe levels of radiation. (Hearing Transcript p. 86, 12 -14, p.266- 12, 16, p. 268-6, p. 273- 4, 10 etc).

~~However, Harvard University ethicists have described the FCC as a “captured agency dominated by the industries it presumably regulates.” (Complainant’s “Introduction” to his exhibits, p. 3, and see below) Below are the first two pages and the rest is available at this link:~~

~~https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency_alster.pdf~~

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Chapter One: The Corrupted Network

Renee Sharp seemed proud to discuss her spring 2014 meeting with the Federal Communications Commission.

As research director for the non-profit Environmental Working Group, Sharp doesn't get many chances to visit with the FCC. But on this occasion she was able to express her concerns that lax FCC standards on radiation from wireless technologies were especially hazardous for children.

The FCC, however, should have little trouble dismissing those concerns.

Arguing that current standards are more than sufficient and that children are at no elevated risk from microwave radiation, wireless industry lobbyists don't generally have to set up appointments months in advance. They are at the FCC's door night and day.

Indeed, a former executive with the Cellular Telecommunications Industry Association (CTIA), the industry's main lobbying group, has boasted that the CTIA meets with FCC officials "500 times a year."¹

Sharp does not seem surprised. "There's no question that the government has been under the influence of industry. The FCC is a captured agency," she said.²

Captured agency.

That's a term that comes up time and time again with the FCC. Captured agencies are essentially controlled by the industries they are supposed to regulate. A detailed look at FCC actions—and non-actions—shows that over the years the FCC has granted the wireless industry pretty much what it has wanted. Until very recently it has also granted cable what it wants. More broadly, the FCC has again and again echoed the lobbying points of major technology interests.

Money—and lots of it—has played a part. The National Cable and Telecommunications Association (NCTA) and CTIA have annually been among Washington's top lobbying spenders. CTIA alone lobbied on at least 35 different Congressional bills through the first half of 2014. Wireless market leaders AT&T and Verizon work through CTIA. But they also do their own lobbying, spending nearly \$15 million through June of 2014, according to data from the Center for Responsive Politics (CRP). In all, CTIA, Verizon, AT&T, T-Mobile USA, and Sprint spent roughly \$45 million lobbying in 2013. Overall, the Communications/Electronics sector is one of Washington's super heavyweight lobbyists, spending nearly \$800 million in 2013-2014, according to CRP data.

But direct lobbying by industry is just one of many worms in a rotting apple. The FCC sits at the core of a network that has allowed powerful moneyed interests with limitless access a variety of ways to shape its policies, often at the expense of fundamental public interests.

As a result, consumer safety, health, and privacy, along with consumer wallets, have all been overlooked, sacrificed, or raided due to unchecked industry influence. The cable industry has consolidated into giant local monopolies that control pricing while leaving consumers little choice over content selection. Though the FCC has only partial responsibility, federal regulators have allowed the Internet to grow into a vast hunting grounds for criminals and commercial interests: the go-to destination for the surrender of personal information, privacy and identity. Most insidious of all, the wireless industry has been allowed to grow unchecked and virtually unregulated, with fundamental questions on public health impact routinely ignored.

Industry controls the FCC through a soup-to-nuts stranglehold that extends from its well-placed campaign spending in Congress through its control of the FCC's Congressional oversight committees to its persistent agency lobbying. "If you're on a committee that regulates industry you'll be a major target for industry," said Twaun Samuel, chief of staff for Congresswoman Maxine Waters.³ Samuel several years ago helped write a bill aimed at slowing the revolving door. But with Congress getting its marching orders from industry, the bill never gained any traction.

Industry control, in the case of wireless health issues, extends beyond Congress and regulators to basic scientific research. And in an obvious echo of the hardball tactics of the tobacco industry, the wireless industry has backed up its economic and political power by stonewalling on public relations and bullying potential threats into submission with its huge standing army of lawyers. In this way, a coddled wireless industry intimidated and silenced the City of San Francisco, while running roughshod over local opponents of its expansionary infrastructure.

On a personal level, the entire system is greased by the free flow of executive leadership between the FCC and the industries it presumably oversees. Currently presiding over the FCC is Tom Wheeler, a man who has led the two most powerful industry lobbying groups: CTIA and NCTA. It is Wheeler who once supervised a \$25 million industry-funded research effort on wireless health effects. But when handpicked research leader George Carlo concluded that wireless radiation did raise the risk of brain tumors, Wheeler's CTIA allegedly rushed to muffle the message. "You do the science. I'll take care of the politics," Carlo recalls Wheeler saying.⁴

Wheeler over time has proved a masterful politician. President Obama overlooked Wheeler's lobbyist past to nominate him as FCC chairman in 2013. He had, after all, raised more than \$700,000 for Obama's presidential campaigns. Wheeler had little trouble earning confirmation from a Senate whose Democrats toed the Presidential line and whose Republicans understood Wheeler was as industry-friendly a nominee as they could get. And while Wheeler, at the behest of his Presidential sponsor, has taken on cable giants with his plans for net neutrality and shown some openness on other issues, he has dug in his heels on wireless.

FCC Guidelines do not protect

Further, the FCC uses guidelines developed in 1966 ~~and they do not apply to chronic non-thermal exposure according to this letter from EPA (below)~~. Non-thermal exposure would be in the non-ionizing range occupied by the radiation from a smart meter.

~~An EPA spokesperson states in this letter:~~

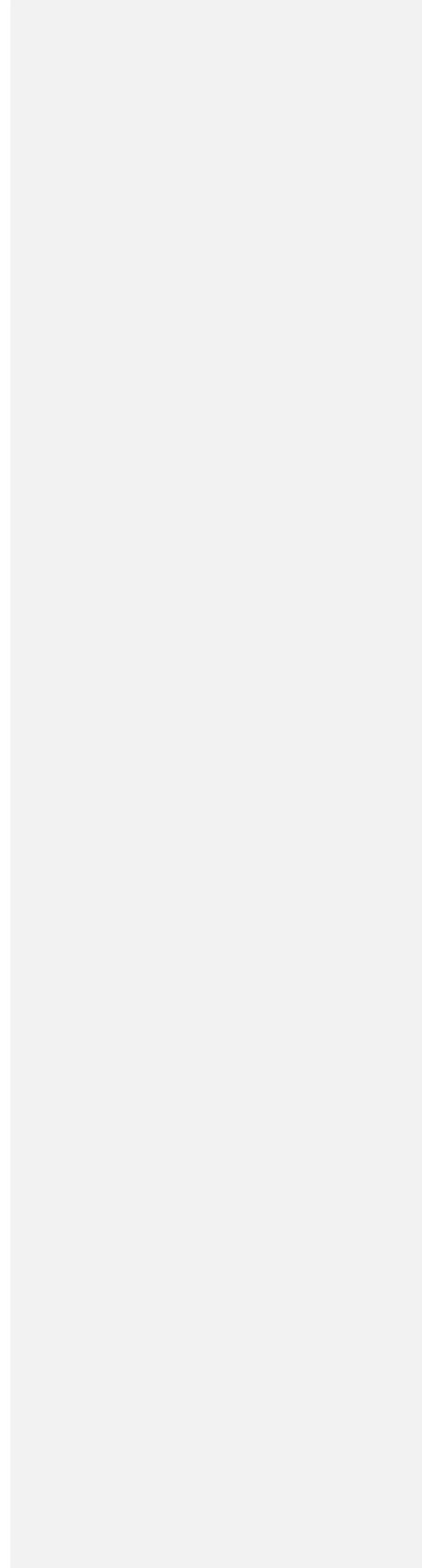
~~*“FCC does not claim that their exposure guidelines provide protection for exposures that are chronic/prolonged and non-thermal.”*~~

~~http://www.emrpolicy.org/litigation/case-law/docs/noi_epa_response.pdf~~

~~Letter from EPA~~

~~*The 2002 advisory letter from the EPA states that the “FCC’s current exposure guidelines as well as those by the IEEE and the ICNRP, are thermally based and do not apply to chronic, nonthermal exposure situations” “FCC does not claim that their exposure guidelines provide protection for exposures that are*~~

~~chronic/prolonged and non-thermal. (Full letter available below and at the link above)~~





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 16 2002

OFFICE OF
AIR AND RADIATION

Ms. Janet Newton
President
The EMR Network
P.O. Box 221
Marshfield, VT 05658

Dear Ms. Newton:

This is in reply to your letter of January 31, 2002, to the Environmental Protection Agency (EPA) Administrator Whitman, in which you express your concerns about the adequacy of the Federal Communications Commission's (FCC) radiofrequency (RF) radiation exposure guidelines and nonthermal effects of radiofrequency radiation. Another issue that you raise in your letter is the FCC's claim that EPA shares responsibility for recommending RF radiation protection guidelines to the FCC. I hope that my reply will clarify EPA's position with regard to these concerns. I believe that it is correct to say that there is uncertainty about whether or not current guidelines adequately treat nonthermal, prolonged exposures (exposures that may continue on an intermittent basis for many years). The explanation that follows is basically a summary of statements that have been made in other EPA documents and correspondence.

The guidelines currently used by the FCC were adopted by the FCC in 1996. The guidelines were recommended by EPA, with certain reservations, in a letter to Thomas P. Stanley, Chief Engineer, Office of Engineering and Technology, Federal Communications Commission, November 9, 1993, in response to the FCC's request for comments on their Notice of Proposed Rulemaking (NPRM), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (enclosed).

The FCC's current exposure guidelines, as well as those of the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-ionizing Radiation Protection, are thermally based, and do not apply to chronic, nonthermal exposure situations. They are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock and burn. The hazard level (for frequencies generally at or greater than 3 MHz) is based on a specific absorption dose-rate, SAR, associated with an effect

Re: Christopher Davis is not a reliable witness

Due to Christopher Davis's cavalier comments about cell phone radiation in his videos and in court, his absolutist views about the safety of cell phone radiation and his statements in the Complainant's hearing, which were shown to be inaccurate, and that his view are contradicted by all the evidence above in this brief. Complainant urges the court to consider his testimony less than reliable.

RE: Dr. Mark A Israel – Defendant's witness

Nowhere in Dr. Israel's recitation of his education does he list any formal education or supervised training in the highly specialized field of the biological effects of non-ionizing radiation, the subject around which this complaint revolves. (Direct Testimony of Mark A. Israel p. 6-7). He never claims to have performed any actual studies testing the biological effects of non- ionizing radiation. By his own words, he gained his knowledge about this subject by reading the literature. His qualification in giving expert testimony was limited to his search of the

literature pertaining to the topic. In other words, he read about the topic. (Direct Testimony of Mark A. Israel p.6-7).

He states that by reading studies, he concluded that the symptoms reported by thousands of people, in 30 different countries who claim electromagnetic hypersensitivity (EHS) were not caused by electromagnetic fields. He asserts that the cause is not known (Direct Testimony of Mark A. Israel p.8). He further mentions provocative studies, from which he concludes that EHS is not a real phenomena because many sufferers can't immediately detect when they are exposed to EM fields. His conclusions are in contradiction to those reached by the **the Brussels International Scientific Declaration on Electromagnetic Sensitivity** (2015) which fully acknowledges EHS. The Brussels declaration concluded that current provocative studies used to test EHS sufferers were "not suitable to prove or disprove causality due to design flaws, in particular because objective inclusion/exclusion criteria and endpoint evaluation criteria need to be more clearly defined; because responses to EMFs /chemicals are highly individual and depend on a variety of exposure parameters; and finally because test conditions are often reducing signal - to - noise ratio thereby obscuring evidence of a possible effect." (Complainant's Response to Mark Israel's Direct Testimony p.4-7) ~~and <http://doeplayer.net/24050988-2015-brussels-international-scientific>~~

[~~declaration-on-electromagnetic-hypersensitivity-and-multiple-chemical-sensitivity.html~~](#)

Mark A. Israel is not a reliable witness

Based on Mark A. Israel's lack of both professional credentials and experience in the specific area of the biological effects of non-ionizing radiation, which are the basis of this complaint, and that his declarations are contradicted by the many sources listed below, all of which he failed to include in his testimony, Complainant asks the court to consider his testimony less than reliable.

Mark Israel's declared (his Direct Testimony p.8) that Electromagnetic Hypersensitivity (EHS) is not a genuine disability and the cause of the symptoms of EHS are "unknown". That conclusion is in stark contrast to all of the evidence below, which affirms the existence of EHS as a genuine disability. How did he miss all of this below:

Items missed by Mark A. Israel in his Direct Testimony:

The findings of the government of Sweden, where EHS has been recognized as a disability since 2002. [~~https://www.emfacts.com/2009/02/1014-electrosensitivity-~~](#)

~~[in sweden by olle johansson/](#)~~ (Complainant's Response to Mark Israel Direct Testimony p.1-3).

The Canadian Human Rights Commission which recognized EHS in 2007.

~~<http://www.aseq-chaq-en.ca/medical-doc.html>~~ (Complainant's Response to Mark Israel's Direct Testimony p.1-3)

The European Parliament which recognized EHS in 2009.

~~[http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-
TA-2009-0216+0+DOC+XML+V0//EN](http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-
TA-2009-0216+0+DOC+XML+V0//EN)~~ (Complainant's Response to Mark Israel's Direct Testimony p.1-3)

The Brussels International Scientific Declaration on Electromagnetic Sensitivity (2015) which fully acknowledged EHS, and declared that current provocative studies used to test EHS sufferers were “not suitable to prove or disprove causality due to design flaws, in particular because objective inclusion/exclusion criteria and endpoint evaluation criteria need to be more clearly defined; because responses to EMFs /chemicals are highly individual and depend on a variety of exposure parameters; and finally because test conditions

are often reducing signal - to - noise ratio thereby obscuring evidence of a possible effect.” (Complainant’s Response to Mark Israel’s Direct Testimony p.4-7) and see link to full declaration below:

~~Here is one of the relevant pages from the Brussels Declaration. The full declaration is available at this link:~~

~~<http://docplayer.net/24050988-2015-brussels-international-scientific-declaration-on-electromagnetic-hypersensitivity-and-multiple-chemical-sensitivity.html>~~



*International Scientific Declaration on
EHS & MCS
Brussels 2015*

Recalling the “Scientific Panel on Electromagnetic Field Health Risks: Consensus Points, Recommendations, and Rationales”, held at Seletun, Norway, November 17-21, 2009.

Recalling the Resolution N°1815 of the Parliamentary Assembly, Council of Europe, adopted May 27, 2011 « The potential dangers of electromagnetic fields and their effect on the environment ».

Recalling the WHO Fact sheet N°193, October 2014 “Electromagnetic fields and public health: mobile phones”.

Recalling the recent International EMF Scientist Appeal in U.N. to Protect Humans and Wildlife from Electromagnetic Fields and Wireless Technology, May 11, 2015.

Considering that the chemical and electromagnetic environment is deteriorating globally, and that so called electromagnetic hypersensitivity (EHS) and multiple chemical sensitivity (MCS) are an escalating worldwide health problem, affecting industrialized as well as developing countries.

worldwide, hereby state in full independence of judgment,

- that a high and growing number of persons are suffering from EHS and MCS worldwide;
- that EHS and MCS affect women, men and children;
- that on the basis of the presently available peer-reviewed scientific evidence of adverse health effects of electromagnetic fields (EMFs) and various chemicals, and on the basis of clinical and biological investigations of patients, EHS is associated with exposure to EMFs and MCS with chemical exposure;
- that many frequencies of the electromagnetic spectrum (radio- and microwave-frequencies as well as low and extremely low frequencies) and multiple chemicals are involved in the occurrence of EHS and MCS respectively;
- that the trigger for illness can be acute high intensity exposure or chronic very low intensity exposure and that reversibility can be obtained with a natural environment characterized by limited levels of anthropogenic EMFs and chemicals;
- that current case-control epidemiological studies and provocative studies aiming at reproducing EHS and/or MCS are scientifically difficult to construct and due to the present design flaws are in fact not suitable to prove or disprove causality; in particular because objective inclusion/exclusion criteria and endpoint evaluation criteria need to be more clearly defined; because responses to EMFs/chemicals are highly individual and depend on a variety of exposure parameters; and finally because test conditions are often reducing signal-to-noise ratio thereby obscuring evidence of a possible effect;
- that the nocebo effect is not a relevant nor a valid explanation when considering scientifically valuable blind provocation studies, since objective biological markers are detectable in patients as well as in animals;
- that new approaches are emerging for clinical and biological diagnosis and for monitoring of EHS and MCS including the use of reliable biomarkers;
- that EHS and MCS may be two faces of the same hypersensitivity-associated pathological condition and that this condition is causing serious consequences to health, professional and family life;
- finally that EHS and MCS ought therefore to be fully recognized by international and national institutions with responsibility for human health.

~~The Americans with Disabilities Act (ADA) and other disability laws, which state that public and commercial buildings are required to provide reasonable accommodations for those disabled by chemical and/or electromagnetic~~

~~sensitivities. Also The United States Access Board includes electromagnetic sensitivity in its guidelines:~~

~~<https://www.access-board.gov/research/completed-research/indoor-environmental-quality/recommendations-for-accommodations>~~

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~~Recommendations for Accommodations~~

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~~(from :The United States Access Board website)~~

~~People with chemical and/or electromagnetic sensitivities can experience debilitating reactions from exposure to extremely low levels of common chemicals such as pesticides, cleaning products, fragrances, and remodeling activities, and from electromagnetic fields emitted by computers, cell phones, and other electrical equipment.~~

~~According to the Americans with Disabilities Act (ADA) and other disability laws, public and commercial buildings are required to provide reasonable accommodations for those disabled by chemical and/or electromagnetic sensitivities. These accommodations are best achieved on a case-by-case basis.~~

~~Reasonable accommodations for a chemically sensitive and/or electromagnetically sensitive individual can include providing a space or meeting area that addresses one or more of the Cleaner Air criteria, upon request, such as~~

- ~~• Remove fragrance emitting devices (FEDS)~~
- ~~• Delay or postpone indoor or outdoor pesticide applications, carpet cleaning, or other cleaning or remodeling until after the meeting~~
- ~~• Provide room or meeting area near exterior door or with window(s) that can be opened~~
- ~~• Require cell phones and computers be turned off~~
- ~~• Provide incandescent lighting in lieu of fluorescent lighting~~
- ~~• Provide at least one nonsmoking, fragrance free person per shift to provide services (e.g. nurse, police officer, security guard, clerk)~~

~~The United States Architectural and Transportation Barriers Compliance~~

~~Board (“Access Board”) is the federal agency that establishes and maintains~~

~~accessibility guidelines under the Architectural Barriers Act of 1968, 42 U.S.C. §~~

~~4151 et seq.; Title II and Title III of the Americans with Disabilities Act (“ADA”);~~

~~42 U.S.C. § 12131 et seq. and § 12181 et seq.; and Telecommunications Act § 101,~~

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No bullets or numbering

~~47 U.S.C. § 255; provides technical assistance to individuals and entities with rights or duties under the ADA; and otherwise administers the federal laws concerned with the protection of people with disabilities. 29 U.S.C. § 792.~~

Governmental and advisory groups on ES equality rights

Council of Europe: [Resolution 1815](#) (Parliamentary Assembly, 2011)

<http://assembly.coe.int/nw/xml/XRef/Xref-XML2HTML-en.asp?fileid=17994&lang=en>

Point 8.1.4: "Pay particular attention to 'electrosensitive' people who suffer from a syndrome of intolerance to electromagnetic fields and introduce special measures to protect them, including the creation of wave-free areas not covered by the wireless network."

European Union: [Parliamentary Resolution \(2008/2211\(INI\)\)](#) (2009)

Point 28:

"Calls on Member States to follow the example of Sweden and to recognise persons that suffer from electrohypersensitivity as being disabled so as to grant them adequate protections as well as equal opportunities

Dr. David O. Carpenter

Brief Video interview with Dr. David O. Carpenter—He states that there is no research on the safety of smart meters and that the radiation from them triggers disease and can create electromagnetic sensitivity.

<https://www.youtube.com/watch?v=n7L21XOC2wA>

Excessive Exposure to Radiofrequency Electromagnetic Fields May Cause the Development of Electrohypersensitivity

https://m.box.com/shared_item/https%3A%2F%2Fapp.box.com%2Fs%2Ftivdzn6msilsfemyeflsm3o0go9zk9dn/view/192768679154

“Aspects of studies on the functional impairment electrohypersensitivity“

by Olle Johansson

The Experimental Dermatology Unit, Department of Neuroscience,

Karolinska Institute, 171 77 Stockholm, Sweden

~~(Excerpt – Full article at link)~~

~~https://m.box.com/shared_item/https%3A%2F%2Fapp.box.com%2Fs%2Ftivdzn6msilsfemyeflsm3e0ge9zk9dn/view/192768748443~~

~~In Sweden, electrohypersensitivity (EHS) is an officially fully recognized functional impairment (i.e., it is not regarded as a disease). Survey studies show that somewhere between 230,000–290,000 Swedish men and women—out of a population of 9,000,000—report a variety of symptoms when being in contact with electromagnetic field (EMF) sources. The electrohypersensitive people have their own handicap organization, The Swedish Association for the Electrohypersensitive (<http://www.feb.se>; the website has an English version). This organization is included in the Swedish Disability Federation (Handikappförbundens SamarbetsOrgan; HSO). HSO is the unison voice of the Swedish disability associations towards the government, the parliament, and national authorities, and is a cooperative body that today consists of 43 national disability organizations (where The Swedish Association for the Electrohypersensitive is 1 of these 43 organizations) with all together about 500,000 individual members. You can read more on <http://www.hso.se> (the site has an English short version). Swedish municipalities, of course, have to follow the UN 22 Standard Rules on the equalization of opportunities for people with disabilities (“Standardregler för att tillförsäkra människor med funktionsnedsättning delaktighet och jämlikhet”; about~~

~~the UN 22 Standard Rules, see website: <http://www.un.org>; since 2007 they have been upgraded into the UN Convention on Human Rights for Persons with Functional Impairments). All people with disabilities shall, thus, be given the assistance and service they have the right to according to the Swedish Act concerning Support and Service for Persons with Certain Functional Impairments (“LSS-lagen”) and the Swedish Social Services Act (“Socialtjänstlagen”). People with disabilities, thus, have many different rights and can get different kinds of support. The purpose of those rights and the support is to give every person the chance to live like everyone else. —~~

~~**Physicist Cyril W. Smith PhD who investigated EHS and developed a treatment for it working in conjunction with Breakspear Hospital in the UK.** Cyril W. Smith has over 100 publications to his name in peer reviewed journals on biomedical electronics and electromagnetic effects in biological systems. Here is one of his papers on EHS:~~

~~https://m.box.com/shared_item/https%3A%2F%2Fapp.box.com%2Fs%2Ftivdzn6msilsfemyeflsm3o0go9zk9dn/view/192768587541 (Complainant’s Response to Mark Israel’s Direct Testimony—P.2-3 and link above)~~

~~(Excerpt—FULL paper available at link above)~~

~~ELECTRICAL SENSITIVITIES and the ELECTRICAL ENVIRONMENT~~

~~Cyril W. Smith, Ph.D.~~

~~A shortened and edited version of notes written for and in cooperation with The Breakspear Hospital, Hemel Hempstead, HP2 4FD, U.K. The writer has been helping their electrically hypersensitive patients since 1982.~~

~~What are Electrical Sensitivities?~~

~~“Many persons suffer from sensitivities to certain foods and environmental chemicals which cause them discomfort, or even in extreme cases prevent them from functioning in any effective manner. Even the most minute amounts of these substances may on occasions ‘trigger’ reactions which are specific to each individual. Warnings regarding nuts, peanuts or gluten are commonly found displayed on food products. When a sensitivity reaction occurs, some regulatory system within the body has ceased to function properly and gives alarm signals, calling for an unjustified panic reaction.~~

~~Usually, it is the autonomic nervous system (ANS) which is the first to become compromised in this way. This system controls all the involuntary body functions. Thus, any part or function of the body might become affected by the same allergen acting in different people which is why such effects do not show up in medical~~

statistics. Those who have already acquired several chemical hypersensitivities and which are 'on-going', are at particular risk of acquiring electrical sensitivities as an additional problem. The allergen 'triggering effect' may transfer from a minute amount of some chemical in the environment to some patient-specific frequency of an electromagnetic field in the environment. Usually, it is the same patient symptoms that continue to be 'triggered'.

It is the frequency of the electromagnetic field that matters, once some patient-specific threshold of intensity or field strength has been exceeded. The range of effective coherent frequencies extends from below a thousand seconds per cycle (circadian rhythms) through audio and radio and microwave frequencies to visible light. All these effects are 'non-thermal': the electrical power is insufficient to produce any significant heating. It is the frequency that matters. In technical terms, it is the spectral power density or the watts per cycle of bandwidth of the radiation which matters.

The Electrical Environment

Such persons may experience problems from the natural electrical environment beyond what is normal such as the influence of light on melatonin levels. Electrical or acoustic (even sub-audio) frequencies from approaching weather fronts or

~~thunderstorms may become troublesome. Eventually, there may be a hypersensitivity to sunlight.~~

~~Fluorescent lighting and lasers at check-outs may make shopping difficult, particularly if inhalants such as chemicals on in-store fabrics provide an initial chemical sensitisation. The patient may experience problems when near any electrical equipment such as power lines, radio-TV or mobile phone transmitters, tape or DVD recorders, computers, mobile phones, satellites or in fact any one of the multitude of electronic devices in the modern environment.”~~

The Bioinitiative 2012 Conclusions – Included:

~~<http://www.bioinitiative.org/conclusions/>~~

“SENSITIVE POPULATIONS MUST BE PROTECTED”

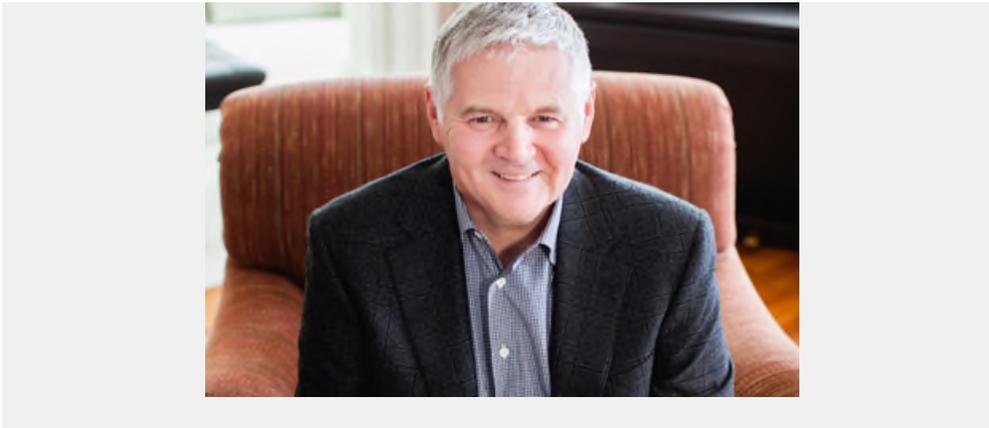
Safety standards for sensitive populations will more likely need to be set at lower levels than for healthy adult populations. Sensitive populations include the developing fetus, the infant, children, the elderly, those with pre-existing chronic diseases, **and those with developed electrical sensitivity (EHS).”**

**Frank Clegg, former president of Microsoft Canada, now CEO of
Canadians for Safe Technology**

Invisible Threat

[February 1, 2014](#)

<http://vitalitymagazine.com/article/invisible-threat/>



Frank Clegg, former president of Microsoft Canada, is now an advocate for wireless radiation safety

The Link Between Wireless Radiation and a Host of Serious Illnesses

The longtime president of Microsoft Canada is now our country's leading advocate for wireless radiation safety. Vitality invited high tech leader Frank Clegg, now CEO of the new non-profit organization, Canadians for Safe Technology (C4ST), to update our readers on what Canada is (or is not) doing to protect your health, and what you can do in this election year to protect yourself and your children. Here is a report on his research and conclusions.

It has been three years since the World Health Organization shocked the medical community by warning that exposure to microwave radiation from wireless devices might increase our cancer risk. If the same elite cancer specialists were to meet again today, the warning would be upgraded from a "possible carcinogen" to a "probable carcinogen." That is according to Professor Emeritus Anthony Miller, of the University of Toronto, who was speaking recently to Toronto's Public Works and Infrastructure Committee. (1)

Since 2011, governments around the world have alerted their populations to approach wireless devices with caution. In Belgium, it will soon be illegal to sell or market "kiddie-phones," mobile phones that are specially designed for children. (2)

In France, the government “recommends limiting the population’s exposure to radiofrequencies – in particular from mobile phones – especially for children and intensive users.” (3)

In India, both the State of Rajasthan and the City of Mumbai have passed laws prohibiting the placement of cellular antennae on the roofs of hospitals and schools and in playgrounds because they are “hazardous to life.” (4)

Lawmakers across our globe are developing safety rules. Similar to the global trend in laws around seat belts, lawn-pesticides, second hand smoke and tanning beds, these laws are designed to protect the public from emerging technologies that eventually reveal emerging evidence of potential harm. Many people are unaware that wireless devices use microwaves, the same as your microwave oven. So your cordless phone, Wi-Fi, smart meter and the cell tower outside your window are effectively functioning as low-level, constantly-emitting, microwave transmitters.

In Canada, various levels of government are largely ignoring the warning from the W.H.O. and are instead hiding behind “Safety Code 6,” (5) an archaic federal guideline that is allowing Canada’s globally envied health care system to ignore our biggest modern health threat.

The Link Between Wireless Radiation and Illness

Since I helped found Canadians For Safe Technology (www.C4ST.org), I have personally met too many people who are suffering from over-exposure to wireless radiation. Cancer isn't the only risk. About 10 years ago Bill Townsend, a former radio talk show host who now works at Humber College, was the father of a sick family. His very young son had been in surgery for his tonsils, and his even younger son had been diagnosed with adenoid swelling that was resulting in a lack of sleep. His wife had chronic skin rashes that had progressed to her face and also suffered dizziness. When his wife's doctor found she had the same adenoid swelling as their son, he scheduled both Bill's son and his wife for surgery on the same day. Bill became suspicious when he started to get sinus swelling himself. So he conducted an internet search and found information linking Wi-Fi to sudden onset chronic health problems including heart irregularity, headaches, nausea, poor sleep, as well as skin rashes and sinus swelling.

Bill then realized there was a direct link between his family's health decline and the installation of a Wi-Fi router in his house. He made a simple decision to turn off the Wi-Fi, and instead hardwire all computers in his home. His wife and son's symptoms reversed so quickly that on the day before surgery their doctor gave

them both a clean bill of health and cancelled both operations. Bill's own symptoms also quickly disappeared.

In every story I hear, the hidden cost of so much wireless radiation in our lives is being borne by our provincial healthcare system. The provinces are blindly following the federal government's outdated Safety Code 6 – even though Safety Code 6 is only a guideline for federal buildings. No one knows how many people are sick or will become sick from this radiation, but scientists estimate about 3% of people have an immediate reaction. That means about one million Canadians. Many others – about 20% of people – will develop symptoms over time, like Bill Townsend did. These people have what Doctors call electrosensitivity or ES.

Increasing Rates of Electrosensitivity

Electrosensitivity is not like an allergy you are born with; it is an illness that builds up over increased time and radiation exposure. Just as we cannot yet explain why some individuals will die from second-hand smoke and others can live a long life smoking 2 packs a day, we cannot explain why some individuals react to wireless radiation. But with more and more cell towers and smart meters crowding into our living spaces, with Wi-Fi in buses, schools, trains, offices and hotels, people who are sensitive now struggle to work, travel and support their families.

Women's College Hospital in Toronto has an environmental health clinic that has seen its waiting list balloon to over 6 months for patients struggling with electrosensitivity. Health Canada is dangerously behind other countries in recognizing electrosensitivity. It is disturbing to note that Health Canada historically did recognize that some people get sick from microwave radiation. But in the last "update" of the Safety Code in 2009, the only significant change was to delete the single sentence that read:

"Certain members of the general public may be more susceptible to harm from RF and microwave exposure."

This acknowledgement that some people are susceptible to harm from wireless radiation had been part of the safety code for more than a decade. It vanished about the same time Wi-Fi was rolled out into all schools and offices. (6)

That is in stark contrast with Sweden, where electrosensitivity is an officially recognized impairment. Some hospitals have built special rooms with very low wireless radiation so that people who are sensitive can get medical care. (7)

In 2012, the Austrian Medical Association also adopted guidelines for the diagnosis and treatment of illness caused by wireless radiation. (8) Austria's

checklist for physicians lists the following symptoms: sleep problems, fatigue, exhaustion, lack of energy, restlessness, heart palpitations, blood pressure problems, muscle and joint pain, headaches, depression, difficulty concentrating, forgetfulness, anxiety, urinary urgency, anomia (difficulty finding words), dizziness, tinnitus and sensations of pressure in the head and the ears, tightness in chest, hyperactivity, irritability, noise sensitivity, burning sensation in the eyes and skin conditions.

I encourage everyone who is reading this with unexplained chronic health problems – including disturbed sleep – to turn off every wireless device in their home for a week.

References

- ~~C4ST, Canadians for Safe Technology, PO Box 33, Maple Grove Village Postal Outlet, Oakville, ON L6J 7P5 Telephone: 1-866-408-4350.~~
- ~~To send your protest letters:~~
 - ~~Dr. Yolande Grise, President, Royal Society of Canada, Walter House, 282 Somerset West, Ottawa, ON, K2P 0J6~~

- o ~~The Honourable Rona Ambrose, P.C., M.P. Health Canada, Brooke Claxton Building, Tunney's Pasture, Ottawa, Ontario K1A 0K9 (postage free)~~

FOOTNOTES:

(1) ~~https://www.youtube.com/watch?feature=player_embedded&v=wARxnaxrRKk~~

(2) ~~<http://newsvoice.se/2013/10/18/belgium-bans-mobile-phones-for-children/>~~

(3) ~~http://www.anses.fr/sites/default/files/documents/PRES2013CPA18EN_0.pdf~~

(4) ~~<http://www.deccanherald.com/content/294813/no-mobile-towers-near-schools.html>~~

(5) ~~http://www.hc-sc.gc.ca/ewh-smmt/pubs/radiation/radio_guide_lignes_direct_eng.php~~

(6) ~~C4ST did a thorough investigation through Access to Information to get all records on the last update of Safety Code 6 in 2009. There are no emails or records of any kind about removing this sentence, despite this being one of the only changes made. A further complaint to the Information Commissioner's office confirmed there were no records to explain why this line vanished.~~

LEGAL AWARDS AND VARIOUS RECOGNITIONS OF ELECTROMAGNETIC SENSITIVITY

Complainant presents various examples of legal awards involving EHS sufferers and recognition of EHS (Complainant's response to Direct Testimony of Mark Israel (pages 7-12 and also found at this link and other links and articles below :

<http://www.electrosensitivity.co/legal.html>

~~(NOTE: The links to these studies are clickable when read from the email version)~~

~~SWEDEN~~

~~Note: This link and article below was sent to Complainant by Cecilia Browning from the Swedish Embassy cecilia.browning@icloud.com~~

~~(Full article at link below:~~

~~<https://www.emfacts.com/2009/02/1014-electrosensitivity-in-sweden-by-olle-johansson/>~~

Electrosensitivity in Sweden by Olle Johansson

Olle Johansson, assoc. prof. The Experimental Dermatology Unit
Department of Neuroscience, Karolinska Institute 171 77 Stockholm
Sweden and Professor The Royal Institute of Technology, Stockholm
Sweden.

In addition to the recent message #1000 "Electrosensitivity becomes an
"inconvenient truth" in Sweden", published on the list by John and Rigmor
Granlund Lind, Monday December 8th, 2008,

<https://www.emfacts.com/weblog/?p=1018>, it is important to realize that in
Sweden electrohypersensitivity (EHS) is definitely not completely denied.

**In Sweden, electrohypersensitivity is an officially fully recognized
functional impairment** (i.e., it is not regarded as a disease). Thus, sick
allowances are not the first step for a person in Sweden with a functional
impairment. The first step is to contact the municipality's special civil
servant for disability issues, as well as the various handicap organizations
and authorities, to achieve accessibility measures of various types with the
sole aim to have an equal life in a society based on equality.

**, The Swedish Association for the Electrohypersensitive receives an
annual governmental subsidy.**

~~As indicated above, in the year 2000, the Swedish government officially recognized electrohypersensitivity as a functional impairment. Furthermore, the symptoms of electrohypersensitivity were also then classified as an occupationally-related symptom-based diagnosis (code ICD-10) by the Nordic Council of Ministers.~~

~~The EU parliament demanded in its resolution from 4th September 2008 that the allowed levels for electromagnetic radiation be considerably reduced with regard to public health. The parliament referred to The Bioinitiative Report from 2007 that especially mentions the electrohypersensitive individuals. Even more so, in a recent bill to the Swedish Parliament, Anne Marie Brodén from the right-wing party "The Moderaterna", asks for exactly the same action to be taken. So, the dawn is here!~~

USA: [Antoinette Yannon wins claim for late husband Samuel Yannon](#) (1982, following illness and later death because of exposure to microwave transmitters

<https://www.leagle.com/decision/198232786ad2d2411289>

Excerpts from the full case decision (below) :

“Claimant's leading expert, Dr. Milton Zaret, provided the board with ample evidence of the existence of a disease identified as "microwave or radiowave sickness". Dr. Zaret's own studies, including those performed for the United States Government, and excerpts of reports from the Warsaw Conference of 1973 which documented the diagnosis of such a disease in other countries, substantiate this conclusion. The board was entitled to credit his testimony and that of other experts supporting this view.”

“The employer contends that there is no evidence of exposure to unsafe levels of radiation. However, the accuracy of the measurements of radiation taken by the employer is in issue, as well as the number of microwave units in operation when measurements were taken. **Moreover, there was expert testimony that even at permissible levels, exposure over a prolonged period of time could produce long-term harmful effects.**

MTR. YANNON v. NEW YORK TEL.

86 A.D.2d 241 (1982)

In the Matter of the Claim of Antoinette Yannon, Respondent, v. New York Telephone Company, Appellant. Workers' Compensation Board, Respondent

Appellate Division of the Supreme Court of the State of New York, Third Department.

May 6, 1982

Claimant is the widow of Samuel Yannon, a former employee of the New York Telephone Company, who died on June 10, 1974. From 1955 until the early part of 1968, decedent was a radio technician assigned to a special service unit which monitored and repaired microwave transmission units at the employer's television transmission facility located on the 87th floor of the Empire State Building. Except for rare occasions when decedent worked on units in the field, he worked exclusively at this facility on a daily basis, with considerable overtime. The tenure of his co-workers generally did not exceed three years. There were 25 microwave units at the facility, spaced about five feet apart, each with its parabolic reflecting dish [86 A.D.2d 242] facing the outer glass wall of the building. Protruding from the center of each reflecting dish was a "feedhorn" antenna from which microwave transmissions could be beamed out to or received from other locations. Behind the center of each dish, enclosed in a housing, was a klystron tube, which was the power source of the unit that emitted the microwave transmissions. Among decedent's duties was the tuning, repairing and aligning of these microwave units. Access to the "feedhorn" antennas was by means of a "walkable area" between the

glass wall of the building and the parabolic reflecting dishes, while the klystron tubes could be reached from the interior console area. The tuning process was performed two or three times each day and required approximately 20 minutes on each occasion. The tube emitted microwaves as it was tuned, while the antenna was supposed to be turned off during such adjustments. One of the crucial questions presented, and one which resulted in conflicting views, was the amount of microwave radiation to which decedent was exposed; whether it exceeded permissible standards, and whether those standards themselves are within acceptable levels.

Prior to 1968 decedent's health was good. However, early that year, at the age of 57, he began to suffer a drastic deterioration of his hearing, sight and co-ordination to such an extent that he was unable to perform his duties, requiring his placement on disability leave. He was retired on July 7, 1971, and died three years later after a prolonged period of progressive physical and mental deterioration. The hospital records where decedent was confined indicate that he suffered from an "organic brain syndrome" or a "degenerative central nervous system disease" or a "chronic brain syndrome" of unknown etiology. There were, however, references in the record, by attending physicians, that decedent's symptomology could be related to microwave exposure. On January 11, 1975, the claimant widow filed her claim for

death benefits, contending that decedent's death resulted from his exposure to microwave radiation.

The testimony at the numerous workers' compensation hearings, both lay and expert, was lengthy and conflicting. The Administrative Law Judge awarded claimant benefits [86 A.D.2d 243] and the board affirmed, finding that decedent's death resulted from an occupational radiation disease, one within the meaning of section 3 (subd 2, par 30) of the Workers' Compensation Law, and that said disease and his ultimate death were directly related to his exposure to microwave radiation while employed by the New York Telephone Company.

On this appeal, we must first consider whether the record demonstrates the existence of a recognizable occupational disease identified as "microwave radiation sickness" and, if so, whether decedent was so inflicted. In order to be so identified, such a disease must actually be caused by the employment and from the particular work the employee is performing. It must result from the nature of the employment and as a natural incident thereof (*Matter of Goldberg v 954 Marcy Corp.*, 276 N.Y. 313). It cannot be founded upon the aggravation of a pre-existing condition which is not occupational in nature. In other words, "[t]here must be a recognizable link between the disease and some distinctive feature of the claimant's job" (*Matter of Detenbeck v General Motors Corp.*, [309 N.Y. 558](#), 560).

Claimant's leading expert, Dr. Milton Zaret, provided the board with ample evidence of the existence of a disease identified as "microwave or radiowave sickness". Dr. Zaret's own studies, including those performed for the United States Government, and excerpts of reports from the Warsaw Conference of 1973 which documented the diagnosis of such a disease in other countries, substantiate this conclusion. The board was entitled to credit his testimony and that of other experts supporting this view.

Whether claimant was so afflicted with this disease presents a more difficult question. The employer's experts, also eminently qualified, steadfastly maintained that decedent suffered from Alzheimer's disease which caused presenile dementia, retinitis pigmentosa and generalized arteriosclerosis. This conclusion also finds ample support in the record. However, our review is limited to whether there is substantial evidence in the record to support the board's decision, not whether upon this record the court would have come to a different conclusion (*Matter of Palermo v Gallucci & Sons*, [5 N.Y.2d 529](#)). [86 A.D.2d 244]

The requisite proof that decedent's death was causally related to exposure to microwave radiation during the course of employment presents another troublesome issue. **The employer contends that there is no evidence of exposure to unsafe levels of radiation.** However, the accuracy of the measurements of

radiation taken by the employer is in issue, as well as the number of microwave units in operation when measurements were taken. **Moreover, there was expert testimony that even at permissible levels, exposure over a prolonged period of time could produce long-term harmful effects.** Here, the exact proof of the amount of radiation to which decedent was exposed is not available (see *Matter of Murphy v Beaunit Fibers*, [42 A.D.2d 1009](#)). **However, the present state of scientific knowledge has not advanced to the point where exactitude exists in fixing the limits of microwave radiation on the human body.** This does not mean that the testimony of recognized experts should be rejected where their views are supported by a record that presents arguable issues as to the degree of radiation, as long as there is substantial evidence to support these views after a study of all the salient material available (*Matter of Besner v Kiddie Nuclear Lab.*, [24 A.D.2d 1045](#); *Matter of Matthews v General Elec. Co.*, [2 A.D.2d 623](#); *Matter of Zaepfel v du Pont de Nemours & Co.*, 284 App Div 693, [affd 309 N.Y. 962](#)).

Finally, upon the entire record and with the assistance provided by the applicable presumption, we conclude that there is substantial evidence to establish the necessary causal relationship between decedent's exposure to microwave radiation, the development of the within occupational disease and his ultimate death (Workers' Compensation Law, § 47; *Matter of Lapinsky v Ardom Bake Shop*, [18 A.D.2d 850](#), [affd 13 N.Y.2d 1163](#)). While the hospital records indicate preliminary

conclusions that decedent's condition was idiopathic, the record, as developed, supports the board's decisions.

The decisions should be affirmed, with costs to the Workers' Compensation Board.

Decisions affirmed, with costs to the Workers' Compensation Board.

Australia: [Dr McDonald and Comcare, AATA 105](#) (February 28th 2013; scientist won 75% of salary when he was unable to work because his employer failed to protect him from radiation although he had been diagnosed with EHS)

Note: The decision runs 24 pages and is available at this link below.

Complainant provides a small portion of it here:

<http://www8.austlii.edu.au/cgi-bin/viewdoc/au/cases/cth/aat/2013/105.html>

McDonald and Comcare [2013] AATA 105 (28 February 2013)

Last Updated: 28 February 2013

[\[2013\] AATA 105](#)

Division **GENERAL ADMINISTRATIVE DIVISION**

File Numbers **2011/0031, 2011/5355 & 2012/2826**

Re **Alexander McDonald**

 APPLICANT

And **Comcare**

 RESPONDENT

DECISION

Tribunal **Deputy President J W Constance**

Date **28 February 2013**

Place **Melbourne**

Application 2011/0031

1. The reviewable decision made by Comcare on 9 November 2010 (being reconsideration 23114453) is set aside.
2. In substitution for the decision set aside it is decided that:
 - (1) Comcare is liable to pay to Dr McDonald compensation in accordance with the [*Safety, Rehabilitation and Compensation Act 1988*](#) (Cth) in respect of an injury, being an aggravation of a condition of nausea, disorientation and headaches;
 - (2) the injury was suffered by him between April 2006 and May 2007.

LEGISLATION

[Safety, Rehabilitation and Compensation Act 1988](#) (Cth) [ss 4\(1\), 5A, 5B, 7\(4\), 14\(1\), 24\(1\), 24\(2\)](#).

– [Safety, Rehabilitation and Compensation Act 1988](#) (Cth) - **Electromagnetic hypersensitivity syndrome** – chronic adjustment disorder with depressed moods – migraine - permanent impairment – whether applicant suffered an injury - whether ailment contributed to, to a significant degree by employment - whether aggravation of ailment contributed to, to a significant degree by employment – perception - immaterial whether symptoms have determinable pathological cause or purely psychogenic - decisions under review set aside.

REASONS FOR DECISION

Tribunal Deputy President J W Constance

INTRODUCTION

1. Dr McDonald has been employed by the *Commonwealth Scientific and Industrial Research Organisation* since 1994. He claims to have been injured in the course of his employment.
2. Dr McDonald has made four claims for compensation under the [Safety, Rehabilitation and Compensation Act 1988](#) (Cth) in respect of conditions he

says have been contributed to, to a significant degree by his employment.

These claims are for:

- (1) aggravation of an electromagnetic hypersensitivity syndrome^[1];
 - (2) chronic adjustment disorder with depressed moods^[2];
 - (3) permanent impairment which has resulted from the adjustment disorder^[3];
 - (4) migraines^[4].
7. Although Dr McDonald had experienced symptoms of EMF sensitivity for many years his condition was not diagnosed until 1993. The diagnosis was made by Dr Cooper, his General Practitioner at the time. Dr McDonald was told that he was sensitive to EMF which is emitted by equipment such as computers, televisions, mobile telephones, microwave ovens, amplifiers, power lines and transformers. For some years prior to 1993 Dr McDonald had worked with a computer with an LCD screen and with a thermal printer without difficulty.
8. Upon being diagnosed with the condition Dr McDonald followed the medical advice he was given and took steps to reduce his exposure to EMF, including moving to live in the country and limiting his exposure to

television and other electronic devices. Dr McDonald noticed that his health improved when he made this move.

9. When Dr McDonald commenced working for CSIRO it agreed to provide him with additional administrative support so that he was not required to do computer work. When he was promoted to a science-management position in 2003 he was provided with full-time administrative support. He retained the technical support already provided to him for his research. These measures enabled him to limit his EMF exposure at work.

12. Between April and July 2006 Dr McDonald was required by his employer to trial working with various pieces of electronic equipment including the Blackberry, a PDA device, a desktop computer enclosed within a Faraday cage^[7] and an electronic projector. The computer was only operated for short periods on several occasions in the presence of Mr Wilson, the Site Rehabilitation Claims and Case Manager who was supervising the trials. Dr McDonald became ill within minutes each time the computer was switched on. He experienced nausea and headaches and suffered severe migraine 2-12 hours later. He felt unwell for several days after each attack. His symptoms were

Cell Phone Radiation Lawsuits May Get a Boost from Italian Supreme Court Ruling

<http://www.consumerinjurylawyers.com/Cell-Phone-Radiation-Lawsuits-May-Get-Boost-from-Italian-Supreme-Court+>

(From the website of Law Firm: Bernstein Liebhard LLP)

Italy's highest court has upheld a lower court ruling that a brain tumor suffered by a heavy mobile phone user was caused by cell phone radiation.

Some legal experts believe the Italian Supreme Court's finding of a causal link between cell phone radiation and brain tumors could inspire more people to pursue cell phone radiation lawsuits.

The Italian case involved a businessman, Innocenzo Marcolini, who developed a brain tumor called a neurinoma on the left side of his head. According to his cell phone radiation lawsuit, Marcolini's tumor was not malignant, but because it affected his cranial nerve, he was forced to have surgery. His quality of life has been badly affected since, his lawsuit alleged. According to a Reuters report, Marcolini said he had used his cell phone up to six hours a day for 12 years. He

would hold the mobile phone in his left hand on the left side of his head, leaving his right hand free to take notes.

In reaching its decision, the Italian Supreme Court relied heavily on studies conducted from 2005-2009 by a group led by Lennart Hardell, a cancer specialist at the University Hospital in Orebro in Sweden, according to Reuters. The court characterized Hardell's research as independent and "not co-financed by the same companies that produce mobile telephones".

"This is significant for very many people. I wanted this problem to become public because many people still do not know the risks," Marcolini said after the ruling was handed down. "I was on the phone, usually the mobile, for at least five or six hours every day at work. I wanted it recognized that there was a link between my illness and the use of mobile and cordless phones... Parents need to know their children are at risk of this illness."

Last year, a panel of 31 experts convened by the World Health Organization deemed cell phone radiation a possible carcinogen. Its decision to do so was also heavily influenced by the Hardell research.

According to a report from The Telegraph, Marcolini's case was also bolstered by expert testimony provided by oncologist Angelo Gino Levis and neurosurgeon

~~Giuseppe Grasso. Levis later posited that the Italian Supreme Court's decision could result in the filing of more cell phone radiation lawsuits.~~

~~"The court decision is extremely important. It finally officially recognizes the link," Dr. Levis said. "It'll open not a road but a motorway to legal actions by victims. We're considering a class action."~~

Complainant's Exhibit 10 Letter from **Dr. David O. Carpenter**

[Finance and Business - New York State](#)

https://www.google.com/search?source=hp&ei=NvTUWumYC8zi_AbY3YSIAg&q=http%3A%2F%2Fdocuments.dps.ny.gov%2Fpublic%2FCommon%2FViewDoc.aspx%3FDocRefId%3D%7B0F281136-F323...&oq=http%3A%2F%2Fdocuments.dps.ny.gov%2Fpublic%2FCommon%2FViewDoc.aspx%3FDocRefId%3D%7B0F281136-F323...&gs_l=psy-ab.12...2472.2472.0.3484.3.2.0.0.0.74.74.1.2.0...0...1.1.64.psy-ab..1.0.0.0...56..UwInb9UJBw

Dr. David O. Carpenter – BIO: <https://www.albany.edu/news/experts/8212.php>

Biography: David O. Carpenter is a public health physician who serves as director of the [Institute for Health and the Environment](#), a Collaborating Center of the World Health Organization, as well as a professor of [environmental health](#)

[sciences](#) at UAlbany's School of Public Health. He previously served as Director of the Wadsworth Center of the New York State Department of Health, and as Dean of the University at Albany School of Public Health. Carpenter, who received his medical degree from Harvard Medical School, has more than 435 peer-reviewed publications, 6 books and 50 reviews and book chapters to his credit.

In his letter to the New York State Public Service commission, Aug. 12, 2016 Dr. David O. Carpenter states: (Complainant exhib. 10)

My specific concerns about electronic meters are as follows:

- 1. The benefit of the electronic meters is entirely to the utilities, and is economic in nature.** If they install these meters they can fire those individuals who at present are employed to go around reading meters.
- 2. When an electronic meter is installed residents have no choice in the matter or ability to avoid exposure. But every individual has the option to use or not use other personal wireless devices. There is a major difference between an exposure which an individual chooses to accept and one that is forced on individuals who can do nothing about it.**
- 3. Most electronic meters transmit signals to the utility for relatively short periods of time, but generate radiofrequency pulses at frequent intervals all**

day and night. Thus the device continuously generates RF radiation that will expose anyone nearby 24/7. 4.

The evidence for adverse effects of radiofrequency radiation is currently strong and grows stronger with each new study. Analog meters with shielded cable do not increase exposure.

5. In my view, as a public health physician with specific expertise in the human effects of radiofrequency radiation, I urge you to require Central Hudson to install analog meters where residents request them.

Full article:



UNIVERSITY AT ALBANY
State University of New York

Institute for Health and the Environment
and
Department of Environmental Health Sciences
School of Public Health

12 August 2016

New York State Public Service Commission
Three Empire Plaza
Albany, New York 12223-1350

Re: Case 14-M-0196

Dear Sirs/Madams:

This is concerning potential adverse health effects associated with exposure to radiofrequency (RF) radiation, specifically that from electronic utility meters. I am a public health physician and former Dean of the School of Public Health at the University at Albany. I have been involved in review and analysis of studies on electromagnetic fields, including radiofrequency fields, for many years. I served as the Executive Secretary to the New York State Powerlines Project in the 1980s, and have published several reviews on the subject. In addition I was invited to present to the recent President's Cancer Panel on the subject of powerline and radiofrequency fields and cancer, and the publication that came from that Panel is attached. I have edited two books on effects of EMFs, including RF radiation. I served as the co-editor of the Bioinitiative Report (www.bioinitiative.org), a comprehensive review of the literature on this subject. The public health chapter from this report was subsequently published in a peer reviewed journal, which is attached. This is a subject which I know well, and one on which I take a public health approach that has as a fundamental principle the need to protect against risk of disease even when one does not have all the information that would be desirable.

There is clear and strong evidence that intensive use of cell phones increases the risk of brain cancer, tumors of the auditory nerve and cancer of the parotid gland, the salivary gland in the cheek by the ear. The evidence for this conclusion is detailed in many publications in the peer-reviewed scientific literature. Most recently the National Toxicology Program reported that chronic exposure of rats to cell phone radiation resulted in the development of the same kinds of brain cancer and auditory nerve tumors (although in this case in the heart not the ear) that are seen in human using cell phones excessively. Electronic meters use similar radiofrequency radiation, in some cases exposing the whole body to levels of radiofrequency radiation similar to cell phones. The difference between a cell phone and an electronic meter environment is that while the cell phone is used only intermittently a smart meter environment is continuous. There is also strong evidence that leukemia rates are increased among people living near to powerful AM radio transmission towers. Because WiFi, radio transmission towers and electronic meters all generate similar RF radiation, my conclusion is that if the whole body is exposed, leukemia is the major cancer of concern, while if only the head is exposed as in using a cell phone, one sees increased risk of local cancers, such as brain cancer. There are a variety of other health effects reported as a result of exposure to RF radiation, but in my judgment the increased risk of cancer is both the best documented and the disease of greatest concern.

There have been few careful studies specifically of the health effects of electronic meters to my knowledge, in great part because they haven't been around very long. But they utilize the same type of RF radiation that is used in cell phones. It should be noted that the World Health Organization has



Institute for Health and the Environment
and
Department of Environmental Health Sciences
School of Public Health

declared radiofrequency radiation to be a possible human carcinogen. While it is true that the nature of exposure to RF from electronic meters is not significantly different from that coming from other wireless devices, what is important is cumulative, aggregate exposure. My position is that we should practice "prudent avoidance", which is to say reduce unnecessary exposure to the degree possible until the magnitude of risk is fully understood.

My specific concerns about electronic meters are as follows:

1. The benefit of the electronic meters is entirely to the utilities, and is economic in nature. If they install these meters they can fire those individuals who at present are employed to go around reading meters. Thus this is a job-killing proposal, and will increase unemployment which is already too high.
2. When an electronic meter is installed residents have no choice in the matter or ability to avoid exposure. But every individual has the option to use or not use other personal wireless devices. There is a major difference between an exposure which an individual chooses to accept and one that is forced on individuals who can do nothing about it.
3. Most electronic meters transmit signals to the utility for relatively short periods of time, but generate radiofrequency pulses at frequent intervals all day and night. Thus the device continuously generates RF radiation that will expose anyone nearby 24/7.
4. The evidence for adverse effects of radiofrequency radiation is currently strong and grows stronger with each new study. Analog meters with shielded cable do not increase exposure.
- 5.

In my view, as a public health physician with specific expertise in the human effects of radiofrequency radiation, I urge you to require Central Hudson to install analog meters where residents request them. At the very least individuals concerned about their health and the health of their families should be allowed to choose an analog meter. Analog meters have withstood the test of time for safety and are not a source of RF radiation. Installation of electronic meters will adversely affect the health of New York State residents and will ultimately invite legal action arising from the development of diseases known to be associated with exposure to RF radiation.

Thank you for the opportunity to comment on this important public health concern, and on the general issue of electronic meters. The use of electronic utility meters is unwise from both a public health point of view, which is where my expertise lies, but and also from a purely short and long-term economic point of view.

Yours sincerely,

A handwritten signature in blue ink that reads "David O. Carpenter".

David O. Carpenter, M.D.
Director, Institute for Health and the Environment
University at Albany

~~Appeals Court Rebuffs ANA and Wireless Carriers Over Cell Phone~~

~~Radiation Warnings~~

~~<https://www.mediapost.com/publications/article/308606/appeals-court-rebuffs-ana-and-wireless-carriers-ov.html?edition=105589>~~

~~• by [Wendy Davis](#) @wendyndavis, October 11, 2017~~

~~Rejecting arguments made by the Association of National Advertisers and CTIA—The Wireless Association, the 9th Circuit Court of Appeals has refused to reconsider its recent **decision to uphold a Berkeley ordinance that requires cell phone retailers to warn customers about possible radiation exposure.**~~

~~The ANA and wireless carriers argued that the 2016 Berkeley law violates free speech principles. The measure requires stores to include the following language in their warnings: "If you carry or use your phone in a pants or shirt pocket or tucked into a bra when the phone is ON and connected to a wireless network, you may exceed the federal guidelines for exposure to RF radiation."~~

~~The Federal Communications Commission independently requires cell phone manufacturers to issue a similar warning, according to the appellate court.~~

~~CTIA sued in 2016 to block Berkeley's law. A trial judge refused to do so, as did a three judge panel of the 9th Circuit. In May, the wireless carriers asked for a new hearing in front of at least 11 of the circuit's judges; that request was backed by the ANA, which argued that the government "may not require private parties to vilify their own products, and certainly cannot require misleading statements about them."~~

October 11, 2017: The 9th U.S. Circuit Court of Appeals denied an *en banc* hearing to the Wireless Industry's challenge to the Berkeley cellphone right to know act. The CTIA has until January 9, 2018 to petition the Supreme Court for a hearing. [The court's ruling can be downloaded at this link.](#) Scroll down for history, more news articles, videos and resources.

FOR PUBLICATION

**UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT**

CTIA–THE WIRELESS
ASSOCIATION,
Plaintiff-Appellant,

v.

CITY OF BERKELEY, California;
CHRISTINE DANIEL, City
Manager of Berkeley,
California, in her official
capacity,
Defendants-Appellees.

No. 16-15141

D.C. No.
3:15-cv-02529-EMC

ORDER

Filed October 11, 2017

Before: William A. Fletcher, Morgan B. Christen,
and Michelle T. Friedland, Circuit Judges.

Order;

Concurrence by Judges W. Fletcher and Christen;
Dissent by Judge Wardlaw

SUMMARY*

Civil Rights

The panel denied a petition for panel rehearing and denied a petition for rehearing en banc on behalf of the court. Judge Friedland voted to grant both.

In its opinion filed on April 21, 2017, the panel affirmed the district court's order denying a request for a preliminary injunction seeking to stay enforcement of a City of Berkeley ordinance requiring cell phone retailers to inform prospective cell phone purchasers that carrying a cell phone in certain ways may cause them to exceed Federal Communications Commission guidelines for exposure to radio-frequency radiation. Applying *Zauderer v. Office of Disciplinary Counsel of the Supreme Court of Ohio*, 471 U.S. 626 (1985), the panel held that the City's compelled disclosure of commercial speech complied with the First Amendment because the information in the disclosure was reasonably related to a substantial governmental interest and was purely factual. Accordingly, the panel concluded that plaintiff had little likelihood of success on its First Amendment claim that the disclosure compelled by the Berkeley ordinance was unconstitutional.

Concurring in the denial of the petition for rehearing en banc, Judges W. Fletcher and Christen stated that their majority opinion held that under *Zauderer*, the City of Berkeley may compel "purely factual and uncontroversial"

* This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

speech by a retailer at the point of sale. The judges stated that the majority joined four sister circuits when it held that *Zauderer* permitted compelled commercial speech even in the absence of consumer deception. The judges stated that applying *Zauderer* to permit compelled commercial speech only when it prevents consumer deception, as suggested by the dissent, would result in a circuit split.

Dissenting from the denial of rehearing en banc, Judge Wardlaw stated that the court should have taken this case en banc to clarify that *Zauderer*'s rational basis standard applies only when the government compels speech to prevent consumer deception.

COUNSEL

Theodore B. Olson (argued), Helgi C. Walker, Jacob T. Spencer, and Samantha A. Daniels, Gibson Dunn & Crutcher LLP, Washington, D.C.; Joshua S. Lipshutz and Joshua D. Dick, Gibson Dunn & Crutcher LLP, San Francisco, California; for Plaintiff-Appellant.

Lester Lawrence Lessig, III (argued), Cambridge, Massachusetts; Amanda Shanor, New Haven, Connecticut; Savith Iyengar, Deputy City Attorney; Zach Cowan, City Attorney; Berkeley City Attorney's Office, Berkeley, California; for Defendants-Appellants.

Robert Corn-Revere and Ronald G. London, Davis Wright Tremaine LLP, Washington, D.C., for Amicus Curiae The Association of National Advertisers, Inc.

**Letter To AT&T Chairman C. Michael Armstrong From WTR Chairman Dr.
George L. Carlo**

<https://www.rfsafe.com/dr-george-l-carlo-letter-to-att-chairman-on-cell-phone-radiation/>

This letter reveals that the occurrence of brain cancer and certain types of tumors among cellular phone users is twice that of non-users. Dr. Carlo is requesting AT&T's assistance to distribute this information to consumers so that they can make an "informed judgment about how much of this unknown risk they wish to assume in their use of wireless phones."

A signed copy of this letter was also sent to a panel of experts convened by the British Parliament to evaluate the science and health concerns regarding wireless communications.

7 October 1999

Mr. C. Michael Armstrong
Chairman and Chief Executive Officer
AT & T Corporation

~~32 Avenue of the Americas
New York, New York 100313-2412~~

~~Dear Mr. Armstrong:~~

~~After much thought, I am writing this letter to you, personally, to ask your assistance in solving what I believe is an emerging and serious problem concerning wireless phones. I write this letter in the interest of the more than 80 million wireless phone users in the United States and the more than 200 million worldwide. But I also write this letter in the interest of your industry, a critical part of our social and economic infrastructure.~~

~~Since 1993, I have headed the WTR surveillance and research program funded by the wireless industry. The goal of WTR has always been to identify and solve any problems concerning consumers' health that could arise from the use of these phones. This past February, at the annual convention of the CTIA, I met with the full board of that organization to brief them on some surprising findings from our work. I do not recall if you were there personally, but my understanding is that all segments of the industry were represented. At that briefing, I explained that the well-conducted scientific studies that WTR was overseeing indicated that the question of wireless phone safety had become confused.~~

Specifically, I reported to you that:

The rate of death from brain cancer among handheld phone users was higher than the rate of brain cancer death among those who used non-handheld phones that were away from their head;

The risk of acoustic neuroma, a benign tumour of the auditory nerve that is well in range of the radiation coming from a phone's antenna system, was fifty percent higher in people who reported using cell phones for six years or more, moreover, that relationship between the amount of cell phone use and this tumour appeared to follow a dose response curve;

The risk of rare neuro-epithelial tumours on the outside of the brain was more than doubled, a statistically significant risk increase, in cell phone users as compared to people who did not use cell phones;

There appeared to be some correlation between brain tumours occurring on the right side of the head and the use of the phone on the right side of the head;

Laboratory studies looking at the ability of radiation from a phone's antenna system to cause functional genetic damage were definitively positive, and were following a dose responsive relationship.

I also indicated that while our overall study of brain cancer occurrence did not show a correlation with cell phone use, the vast majority of the tumours that were studied were well out of range of the radiation that one would expect from a cell phone's antenna. Because of that distance, the finding of no effect was questionable. (Aegis Note: The entire phone is an antenna). Such misclassification of radiation exposure would tend to dilute any real effect that may have been present. In addition, I reported to you that the genetic damage studies we conducted to look at the ability of radiation from the phones to break DNA were negative, but that the positive finding of functional DNA damage could be more important, perhaps indicating a problem that is not dependent on DNA breakage, and that these inconsistencies needed to be clarified. I reported that while none of these findings alone were evidence of a definitive health hazard from wireless phones, the pattern of potential health effects evidenced by different types of studies, from different laboratories and by different investigators, raised serious questions.

Following my presentation, I heard by voice vote of those present, a pledge to “do the right thing in following up these findings” and a commitment of the necessary funds.

~~When I took on the responsibility of doing this work for you, I pledged five years. I was asked to continue on through the end of a sixth year, and agreed. My tenure is now completed. My presentation to you and the CTIA board in February was not an effort to lengthen my tenure at WTR, nor to lengthen the tenure of WTR itself. I was simply doing my job of letting you know what we found and what needed to be done following from our findings. I made this expressly clear during my presentation to you and in many subsequent conversations with members of your industry and the media.~~

~~Today, I sit here extremely frustrated and concerned that appropriate steps have not been taken by the wireless industry to protect consumers during this time of uncertainty about safety. The steps I am referring to were specifically followed from the WTR program and have been recommended repeatedly in public and private for and by me and other experts from around the world. As I prepare to move away from the wireless phone issue and into a different public health direction, I am concerned that the wireless industry is missing a valuable opportunity by dealing with these public health concerns through politics, creating illusions that more research over the next several years helps consumers today, and false claims that regulatory compliance means safety. The better choice by the wireless industry would be to implement measured steps aimed at true consumer protection.~~

~~Alarminglly, indications are that some segments of the industry have ignored the scientific findings suggesting potential health effects, have repeatedly and falsely claimed that wireless phones are safe for all consumers including children, and have created an illusion of responsible follow up by calling for and supporting more research. The most important measures of consumer protection are missing: complete and honest factual information to allow informed judgment by consumers about assumption of risk; the direct tracking and monitoring of what happens to consumers who use wireless phones; and, the monitoring of changes in the technology that could impact health.~~

~~I am especially concerned about what appear to be actions by a segment of the industry to conscript the FCC, the FDA and The World Health Organization with them in following a non-effectual course that will likely result in a regulatory and consumer backlash.~~

~~As an industry, you will have to deal with the fallout from all of your choices, good and bad, in the long term. But short term, I would like your help in effectuating an important public health intervention today.~~

~~The question of wireless phone safety is unclear. Therefore, from a public health perspective, it is critical for consumers to have the information they need to make~~

~~an informed judgment about how much of this unknown risk they wish to assume in their use of wireless phones.~~

~~Informing consumers openly and honestly about what is known and not known about health risks is not liability laden—it is evidence that your industry is being responsible, and doing all it can to assure safe use of its products. The current popular backlash we are witnessing in the United States today against the tobacco industry is derived in large part from perceived dishonesty on the part of that industry in not being forthright about health effects. I urge you to help your industry not repeat that mistake.~~

~~As we close out the business of the WTR, I would like to openly ask for your help in distributing the summary findings we have compiled of our work. This last action is what always has been anticipated and forecast in the WTR's research agenda. I have asked another organization with which I am affiliated, The Health Risk Management Group (HRMG), to help us with this public health intervention step, and to put together a consumer information package for widespread distribution. Because neither WTR nor HRMG have the means to effectuate this intervention, I am asking you to help us do the right thing.~~

~~I would be happy to talk to you personally about this.~~

Sincerely yours

George L. Carlo Ph.D, M.S., J.D

Chairman

Wireless Technology Research LLC

**~~WSJ Reports Murray Cellphone Cancer Case May Cost Wireless Industry
Over 1.9 Billion Dollars~~**

~~By John Coates~~

~~<http://www.sun-sentinel.com/sfl-olegal02oct02-story.html>~~

~~A lot has changed since David Reynard, of Madeira Beach, filed the first lawsuit in 1992 claiming cell phones cause brain cancer. Now over 20 years later there are a growing number of prominent doctors and scientists that are raising warning flags over phone radiation. And your kids could be facing a greater risk from RF exposure.—~~

~~Reynard alleged his wife's fatal brain tumor was caused by her cell phone.~~

~~Publicity about the Reynard case caused the Cellular Telecommunications Industry Association (CTIA) to pledge \$25 million for research to allay the public's fears.~~

However, this industry funded research backfired on the wireless industry when its lead researcher Dr. George Carlo came forward with claims that his industry funded research pointed to increased cancer among other health risk.

As Dr. Carlo states in his 2002 book entitled “Cell Phones: Invisible Hazards in the Wireless Age: An Insider’s Alarming Discoveries about Cancer and Genetic Damage”:

“The big picture is disturbingly clear. There is a definite risk that the radiation plume that emanates from a cell phone antenna can cause cancer and other health problems. It is a risk that must be seen and understood by all who use cell phones so they can take all the appropriate and available steps to protect themselves and especially to protect young children whose skulls are still growing and who are the most vulnerable to the risks of radiation.”

Cell Phone Cancer Lawsuits: The Past Versus the Present

Earlier this month (Nov 2015), Dr. Gisela Mercada Deane, chair of radiology at the American Academy of Pediatrics, made the announcement that the current FCC test do not take children into account. Their skulls are thinner and can absorb more radiation, he said.

~~In a letter to the FCC, the American Academy of Pediatrics asked that the guidelines, last updated in 1996, be revised to account for cell phone users today, particularly children.~~

~~And just two months ago, September, 2015 U.S. District Judge Edward Chen upheld a new Berkeley ordinance that requires cellphone retailers to warn customers about keeping their cellphones too close to their bodies. The weight of scientific data reviewed by the Judge was enough for a very reasonable doubt about the safety of cell phones. “There is a reasonable scientific basis to believe that (radio frequency) radiation at some levels can and do present health risks,”— U.S. District Judge Chen.~~

~~More than two decades have passed since Reynard’s first cell phone cancer lawsuit. Global cellular phone subscription have soared from 12 million during the first trial to more than 6 billion cell phone users today. In a twist of fate, Reynard’s home town of Madeira Beach, FL is also the Headquarters of RF Safe Corporation, the world’s largest manufacturer and distributor of accessories for cell phone radiation safety.~~

~~In 2015, RF Safe opened its 2nd Smartphone Radiation Safety retail store in Florida, and expects to expand into several more states and countries in 2016.~~

**~~TIMES HAVE CHANGED—DATA OVERWHELMING SUGGEST
SEVERAL MECHANISMS FOR CANCER~~**

~~Michael Murray Daughter Alicia vs Motorola Cellphone Cancer~~

~~On 11/23/2015 the WSJ reported that Jeffrey Morganroth, the lawyer representing the Murrays, has brought several other cases against Motorola and other defendants. A total of 13 cases have been consolidated into the Murray case, and the plaintiffs are seeking more than \$1.9 billion in damages combined.~~

~~This year Verizon informed shareholders in filings with the Securities and Exchange Commission that wireless carriers specifically acknowledge the risk posed by cell phone cancer lawsuits. “We may incur significant expenses in defending these lawsuits,” Verizon wrote in its 2015 annual filing. “In addition, we may be required to pay significant awards or settlements.”~~

~~Morganroth’s lead plaintiff, Michael Murray, got his first cell phone, an early Motorola flip phone model, at age 23. Murray was a heavy, daily user until severe headaches, vision problems and other symptoms caused him to consult a doctor. In November 1999, Michael Murray was diagnosed with brain cancer and died April 20, 2003, at age 35.~~

~~Murray worked as a communications technician, testing wireless phones for Motorola at its Libertyville, Ill., facility, before his illness. There is a very big difference between a tech working on new wireless equipment design and the end user of a consumer product—untested RF power levels, untested shielding, levels of exposure all different.~~

~~Once alerted to the health risk from excessive RF radiation exposure, Murray and his wife Patricia filed a lawsuit, naming Motorola and others as defendants, alleging the tumor in his left temporal lobe was caused by exposure to radio frequency (RF) radiation emitted by cell phones he used.~~

~~The wireless industry has only one hope to maintain a legal precedent for their twisted and deceptive views regarding the safety of wireless consumer devices — Frye vs Daubert!~~

~~In December 2014, the D.C. Court of Appeals accepted a review of *Murray v. Motorola, Inc. et al*, No. 14*DA-18 (D.C. Dec. 10, 2014). The underlying issue in Murray is whether wireless phones can cause two types of brain tumors, gliomas and acoustic neuroma. The court will be deciding whether the District of Columbia will remain with the minority of state courts, including neighboring Maryland, applying *Frye* as the standard for admitting medical experts; or whether it will join the federal courts and majority of state courts applying *Daubert*.~~

The Difference Between *Frye* and *Daubert*

Judge Weisberg of the Superior Court for the District of Columbia, ruled in *Murray* that five of the plaintiffs' eight experts would be permitted to testify that it is very likely that cell phones could cause brain tumors. According to Judge Weisberg, the opinions offered by the plaintiffs' experts, while admissible under the *Frye* standard, "would almost certainly be excluded under *Daubert*."

The big difference between *Daubert* and *Frye* is who should define what is considered "bad" or "good" science. Under *Daubert*, a judge plays a prominent role and is considered the "gatekeeper," ensuring the jury hears and bases its decision upon only scientifically reliable evidence. Under *Frye*, however, the keystone analysis decides whether the methodology is "generally accepted" in the expert's particular field. The *Frye* standard also follows a common sense notion that an expert in a scientific field should decide when a scientific methodology applied is generally accepted, rather than being defined by a Judge without necessary scientific knowledge.

Frye's target on generally accepted methodology works well for deductive science but comes up short when applied to inductive sciences like epidemiology. In toxic tort cases today, epidemiological studies are pervasive as they are considered the "best evidence of general causation."

~~No matter how much influence the industry has on government officials, corrupt scientist and regulatory agencies like the FCC, CDC and FDA—however the Murray lawsuit turns out:~~

~~It is fair to say that we are no longer talking about mere precaution of uncertain risk, but about prevention of highly probable and known risks. Based on the accumulating evidence—the Benevento Statement, BioInitiative Report, London Report—all show proof the health effects pertain to ROS Reactive Oxygen Species, cellular changes, effects on DNA, fertility, and neurobehavioral effects—e.g. deficits in memory, mood changes, fatigue, headache, as well as electro hypersensitivity and cancer.~~

~~**It is now fairly certain that there will be widespread adverse public health impacts. What remains uncertain is how many will be affected...**~~

The Bioinitiative 2012 report – Conclusions

<http://www.bioinitiative.org/conclusions/>

The Bioinitiative report offers conclusions from a review of 1800 new studies, showing that non- ionizing radiation can trigger abnormal gene transcription, DNA damage, reduction in free radical scavengers –particularly melatonin, neurotoxicity, carcinogenicity in humans, and other physiological damages. Also, Complainant’s exhibit #18 lists 65 of the top experimental studies (up to April 2017) which found physiological harm from non-ionizing radiation. The vast majority of these studies were reported in well known peer-reviewed journals.

Complainant here offers conclusions of the Bioinitiative 2012 report which was based on 1800 new studies

<http://www.bioinitiative.org/conclusions/>

BIOINITIATIVE 2012 – CONCLUSIONS Table 1-1

Overall, these 1800 or so new studies report abnormal gene transcription (Section 5); genotoxicity and single-and double-strand DNA damage (Section 6); stress proteins because of the fractal RF-antenna like nature of DNA (Section 7); chromatin condensation and loss of DNA repair capacity in human stem cells (Sections 6 and 15); reduction in free-radical scavengers – particularly melatonin (Sections 5, 9, 13, 14, 15, 16 and 17); neurotoxicity in humans and animals (Section 9), carcinogenicity in humans (Sections 11, 12, 13, 14, 15, 16 and 17); serious impacts on human and animal sperm morphology and function (Section 18); effects on offspring behavior (Section 18, 19 and 20); and effects on brain and cranial bone development in the

offspring of animals that are exposed to cell phone radiation during pregnancy (Sections 5 and 18). This is only a snapshot of the evidence presented in the BioInitiative 2012 updated report.

BIOEFFECTS ARE CLEARLY ESTABLISHED

Bioeffects are clearly established and occur at very low levels of exposure to electromagnetic fields and radiofrequency radiation. Bioeffects can occur in the first few minutes at levels associated with cell and cordless phone use. Bioeffects can also occur from just minutes of exposure to mobile phone masts (cell towers), WI-FI, and wireless utility ‘smart’ meters that produce whole-body exposure. Chronic base station level exposures can result in illness.

BIOEFFECTS WITH CHRONIC EXPOSURES CAN REASONABLY BE PRESUMED TO RESULT IN ADVERSE HEALTH EFFECTS

Many of these bioeffects can reasonably be presumed to result in adverse health effects if the exposures are prolonged or chronic. This is because they interfere with normal body processes (disrupt homeostasis), prevent the body from healing damaged DNA, produce immune system imbalances, metabolic disruption and lower resilience to disease across multiple pathways.

Essential body processes can eventually be disabled by incessant external stresses (from system-wide electrophysiological interference) and lead to pervasive impairment of metabolic and reproductive functions.

LOW EXPOSURE LEVELS ARE ASSOCIATED WITH BIOEFFECTS AND ADVERSE HEALTH EFFECTS AT CELL TOWER RFR EXPOSURE LEVELS

At least five new cell tower studies are reporting bioeffects in the range of 0.003 to 0.05 $\mu\text{W}/\text{cm}^2$ at lower levels than reported in 2007 (0.05 to 0.1 uW/cm^2 was the range below which, in 2007, effects were not observed). Researchers report headaches, concentration difficulties and behavioral problems in children and adolescents; and sleep disturbances, headaches and concentration problems in adults. Public safety standards are 1,000 – 10,000 or more times higher than levels now commonly reported in mobile phone base station studies to cause bioeffects.

EVIDENCE FOR FERTILITY AND REPRODUCTION EFFECTS: HUMAN SPERM AND THEIR DNA ARE DAMAGED

Human sperm are damaged by cell phone radiation at very low intensities in the low microwatt and nanowatt/ cm^2 range (0.00034 – 0.07 uW/cm^2). There is a veritable flood of new studies reporting sperm damage in humans and animals, leading to substantial concerns for fertility, reproduction and health of the offspring (unrepaired de novo mutations in sperm). Exposure levels are similar to those resulting from wearing a cell phone on the belt, or in the pants pocket, or using a wireless laptop computer on the lap. Sperm lack the ability to repair DNA damage.

Studies of human sperm show genetic (DNA) damage from cell phones on standby mode and wireless laptop use. Impaired sperm quality, motility and viability occur at exposures of 0.00034 uW/cm^2 to 0.07 uW/cm^2 with a resultant reduction in human male fertility. Sperm cannot repair DNA damage.

Several international laboratories have replicated studies showing adverse effects on sperm quality, motility and pathology in men who use and particularly those who wear a cell phone,

PDA or pager on their belt or in a pocket (Agarwal et al, 2008; Agarwal et al, 2009; Wdowiak et al, 2007; De Iuliis et al, 2009; Fejes et al, 2005; Aitken et al, 2005; Kumar, 2012). Other studies conclude that usage of cell phones, exposure to cell phone radiation, or storage of a mobile phone close to the testes of human males affect sperm counts, motility, viability and structure (Aitken et al, 2004; Agarwal et al, 2007; Eroglu et al., 2006). Animal studies have demonstrated oxidative and DNA damage, pathological changes in the testes of animals, decreased sperm mobility and viability, and other measures of deleterious damage to the male germ line (Dasdag et al, 1999; Yan et al, 2007; Otitoloju et al, 2010; Salama et al, 2008; Behari et al, 2006; Kumar et al, 2012). There are fewer animal studies that have studied effects of cell phone radiation on female fertility parameters. Panagopoulous et al. 2012 report decreased ovarian development and size of ovaries, and premature cell death of ovarian follicles and nurse cells in *Drosophila melanogaster*. Gul et al (2009) report rats exposed to stand-by level RFR (phones on but not transmitting calls) caused decrease in the number of ovarian follicles in pups born to these exposed dams. Magras and Xenos (1997) reported irreversible infertility in mice after five (5) generations of exposure to RFR at cell phone tower exposure levels of less than one microwatt per centimeter squared ($\mu\text{W}/\text{cm}^2$).

EVIDENCE THAT CHILDREN ARE MORE VULNERABLE

There is good evidence to suggest that many toxic exposures to the fetus and very young child have especially detrimental consequences depending on when they occur during critical phases of growth and development (time windows of critical development), where such exposures may lay the seeds of health harm that develops even decades later. Existing FCC and ICNIRP public

safety limits seem to be not sufficiently protective of public health, in particular for the young (embryo, fetus, neonate, very young child).

The Presidential Cancer Panel (2010) found that children *‘are at special risk due to their smaller body mass and rapid physical development, both of which magnify their vulnerability to known carcinogens, including radiation.’*

The American Academy of Pediatrics, in a letter to Congressman Dennis Kucinich dated 12 December 2012 states *“Children are disproportionately affected by environmental exposures, including cell phone radiation. The differences in bone density and the amount of fluid in a child’s brain compared to an adult’s brain could allow children to absorb greater quantities of RF energy deeper into their brains than adults. It is essential that any new standards for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded through their lifetimes.”*

FETAL AND NEONATAL EFFECTS OF EMF

Fetal (*in-utero*) and early childhood exposures to cell phone radiation and wireless technologies in general may be a risk factor for hyperactivity, learning disorders and behavioral problems in school.

Fetal Development Studies: Effects on the developing fetus from *in-utero* exposure to cell phone radiation have been observed in both human and animal studies since 2006. Divan et al (2008) found that children born of mothers who used cell phones during pregnancy develop more behavioral problems by the time they have reached school age than children whose mothers did

not use cell phones during pregnancy. Children whose mothers used cell phones during pregnancy had 25% more emotional problems, 35% more hyperactivity, 49% more conduct problems and 34% more peer problems (Divan et al., 2008).

Common sense measures to limit both ELF-EMF and RF EMF in these populations is needed, especially with respect to avoidable exposures like incubators that can be modified; and where education of the pregnant mother with respect to laptop computers, mobile phones and other sources of ELF-EMF and RF EMF are easily instituted.

Sources of fetal and neonatal exposures of concern include cell phone radiation (both paternal use of wireless devices worn on the body and maternal use of wireless phones during pregnancy). Exposure to whole-body RFR from base stations and WI-FI, use of wireless laptops, use of incubators for newborns with excessively high ELF-EMF levels resulting in altered heart rate variability and reduced melatonin levels in newborns, fetal exposures to MRI of the pregnant mother, and greater susceptibility to leukemia and asthma in the child where there have been maternal exposures to ELF-EMF.

A precautionary approach may provide the frame for decision-making where remediation actions have to be realized to prevent high exposures of children and pregnant woman. (Bellieni and Pinto, 2012 – Section 19)

EMF/RFR AS A PLAUSIBLE BIOLOGICAL MECHANISM FOR AUTISM (ASD)

- Children with existing neurological problems that include cognitive, learning, attention, memory, or behavioral problems should as much as possible be provided with wired (not wireless) learning, living and sleeping environments,
- Special education classrooms should observe 'no wireless' conditions to reduce avoidable stressors that may impede social, academic and behavioral progress.
- All children should reasonably be protected from the physiological stressor of significantly elevated EMF/RFR (wireless in classrooms, or home environments).
- School districts that are now considering all-wireless learning environments should be strongly cautioned that wired environments are likely to provide better learning and teaching environments, and prevent possible adverse health consequences for both students and faculty in the long-term.
- Monitoring of the impacts of wireless technology in learning and care environments should be performed with sophisticated measurement and data analysis techniques that are cognizant of the non-linear impacts of EMF/RFR and of data techniques most appropriate for discerning these impacts.
- There is sufficient scientific evidence to warrant the selection of wired internet, wired classrooms and wired learning devices, rather than making an expensive and potentially health-harming commitment to wireless devices that may have to be substituted out later, and
- Wired classrooms should reasonably be provided to all students who opt-out of wireless environments. (Herbert and Sage, 2012 – Section 20)

Many disrupted physiological processes and impaired behaviors in people with ASDs closely resemble those related to biological and health effects of EMF/RFR exposure. Biomarkers and

indicators of disease and their clinical symptoms have striking similarities. Broadly speaking, these types of phenomena can fall into one or more of several classes: a) alteration of genes or gene expression, b) induction of change in brain or organismic development, c) alteration of phenomena modulating systemic and brain function on an ongoing basis throughout the life course (which can include systemic pathophysiology as well as brain-based changes), and d) evidence of functional alteration in domains such as behavior, social interaction and attention known to be challenged in ASD. Several thousand scientific studies over four decades point to serious biological effects and health harm from EMF and RFR. These studies report genotoxicity, single- and double-strand DNA damage, chromatin condensation, loss of DNA repair capacity in human stem cells, reduction in free-radical scavengers (particularly melatonin), abnormal gene transcription, neurotoxicity, carcinogenicity, damage to sperm morphology and function, effects on behavior, and effects on brain development in the fetus of human mothers that use cell phones during pregnancy. Cell phone exposure has been linked to altered fetal brain development and ADHD-like behavior in the offspring of pregnant mice. Reducing life-long health risks begins in the earliest stages of embryonic and fetal development, is accelerated for the infant and very young child compared to adults, and is not complete in young people (as far as brain and nervous system maturation) until the early 20's. Windows of critical development mean that risk factors once laid down in the cells, or in epigenetic changes in the genome may have grave and life-long consequences for health or illness for every individual.

All relevant environmental conditions, including EMF and RFR, which can degrade the human genome, and impair normal health and development of species including homo sapiens, should be given weight in defining and implementing prudent, precautionary actions to protect public health.

Allostatic load in autism and autistic decompensation – we may be at a tipping point that can be pushed back by removing unnecessary stressors like EMF/RFR and building resilience.

The consequence of ignoring clear evidence of large-scale health risks to global populations, when the risk factors are largely avoidable or preventable is too high a risk to take. With the epidemic of autism (ASD) putting the welfare of children, and their families in peril at a rate of one family in 88, the rate still increasing annually, we cannot afford to ignore this body of evidence. The public needs to know that these risks exist, that transition to wireless should not be presumed safe, and that it is very much worth the effort to minimize exposures that still provide the benefits of technology in learning, but without the threat of health risk and development impairments to learning and behavior in the classroom.

(Herbert and Sage, 2010 – Section 20)

THE BLOOD-BRAIN BARRIER IS AT RISK

The BBB is a protective barrier that prevents the flow of toxins into sensitive brain tissue.

Increased permeability of the BBB caused by cell phone RFR may result in neuronal damage.

Many research studies show that very low intensity exposures to RFR can affect the blood-brain barrier (BBB) (mostly animal studies). Summing up the research, it is more probable than unlikely that non-thermal EMF from cell phones and base stations do have effects upon biology.

A single 2-hr exposure to cell phone radiation can result in increased leakage of the BBB, and 50 days after exposure, neuronal damage can be seen, and at the later time point also albumin leakage is demonstrated. The levels of RFR needed to affect the BBB have been shown to be as low as 0.001 W/kg, or less than holding a mobile phone at arm's length. The US FCC standard

is 1.6 W/kg; the ICNIRP standard is 2 W/kg of energy (SAR) into brain tissue from cell/cordless phone use. Thus, BBB effects occur at about 1000 times lower RFR exposure levels than the US and ICNIRP limits allow. (Salford, 2012 – Section 10)

If the blood-brain barrier is vulnerable to serious and on-going damage from wireless exposures, then we should perhaps also be looking at the blood-ocular barrier (that protects the eyes), the blood-placenta barrier (that protects the developing fetus) and the blood-gut barrier (that protects proper digestion and nutrition), and the blood-testes barrier (that protects developing sperm) to see if they too can be damaged by RFR.

EPIDEMIOLOGICAL STUDIES CONSISTENTLY SHOW ELEVATIONS IN RISK OF BRAIN CANCERS

Brain Tumors: There is a consistent pattern of increased risk of glioma and acoustic neuroma associated with use of mobile phones and cordless phones.

“Based on epidemiological studies there is a consistent pattern of increased risk for glioma and acoustic neuroma associated with use of mobile phones and cordless phones. The evidence comes mainly from two study centres, the Hardell group in Sweden and the Interphone Study Group. No consistent pattern of an increased risk is seen for meningioma. A systematic bias in the studies that explains the results would also have been the case for meningioma. The different risk pattern for tumor type strengthens the findings regarding glioma and acoustic neuroma. Meta-analyses of the Hardell group and Interphone studies show an increased risk for glioma and acoustic neuroma. Supportive evidence comes also from anatomical localisation of the tumor to the most exposed area of the brain, cumulative exposure in hours and latency time that

all add to the biological relevance of an increased risk. In addition risk calculations based on estimated absorbed dose give strength to the findings. (Hardell, 2012 – Section 11)

“There is reasonable basis to conclude that RF-EMFs are bioactive and have a potential to cause health impacts. There is a consistent pattern of increased risk for glioma and acoustic neuroma associated with use of wireless phones (mobile phones and cordless phones) mainly based on results from case-control studies from the Hardell group and Interphone Final Study results. Epidemiological evidence gives that RF-EMF should be classified as a human carcinogen.

Based on our own research and review of other evidence the existing FCC/IEE and ICNIRP public safety limits and reference levels are not adequate to protect public health. New public health standards and limits are needed.

EVIDENCE FOR GENETIC EFFECTS

Eighty six (86) new papers on genotoxic effects of RFR published between 2007 and mid-2012 are profiled. Of these, 54 (63%) showed effects and 32 (37%) showed no effects.

Forty three (43) new ELF-EMF papers and two static magnetic field papers that report on genotoxic effects of ELF-EMF published between 2007 and mid-2012 are profiled. Of these, 35 (81%) show effects and 8 (19%) show no effect.

EVIDENCE FOR NEUROLOGICAL EFFECTS

One hundred fifty five (155) new papers that report on neurological effects of RFR published

between 2007 and mid-2012 are profiled. Of these, 98 (63%) showed effects and 57 (37%) showed no effects.

Sixty nine (69) new ELF-EMF papers (including two static field papers) that report on genotoxic effects of ELF-EMF published between 2007 and mid-2012 are profiled. Of these, 64 (93%) show effects and 5 (7%) show no effect.

EVIDENCE FOR CHILDHOOD CANCERS (LEUKEMIA)

With overall 42 epidemiological studies published to date power frequency EMFs are among the most comprehensively studied environmental factors. Except ionizing radiation no other environmental factor has been as firmly established to increase the risk of childhood leukemia.

Sufficient evidence from epidemiological studies of an increased risk from exposure to EMF (power frequency magnetic fields) that cannot be attributed to chance, bias or confounding.

Therefore, according to the rules of IARC such exposures can be classified as a **Group 1 carcinogen (Known Carcinogen)**.

There is no other risk factor identified so far for which such unlikely conditions have been put forward to postpone or deny the necessity to take steps towards exposure reduction. As one step in the direction of precaution, measures should be implemented to guarantee that exposure due to transmission and distribution lines is below an average of about 1 mG. This value is arbitrary at present and only supported by the fact that in many studies this level has been chosen as a reference.

Base-station level RFR at levels ranging from less than 0.001 uW/cm² to 0.05 uW/cm². In 5 new studies since 2007, researchers report headaches, concentration difficulties and behavioral problems in children and adolescents; and sleep disturbances, headaches and concentration problems in adults.

MELATONIN, BREAST CANCER AND ALZHEIMER'S DISEASE

MELATONIN AND BREAST CANCER

Conclusion: Eleven (11) of the 13 published epidemiologic residential and occupational studies are considered to provide (positive) evidence that high ELF MF exposure can result in decreased melatonin production. The two negative studies had important deficiencies that may certainly have biased the results. There is sufficient evidence to conclude that long-term relatively high ELF MF exposure can result in a decrease in melatonin production. It has not been determined to what extent personal characteristics, e.g., medications, interact with ELF MF exposure in decreasing melatonin production

Conclusion: New research indicates that ELF MF exposure, in vitro, can significantly decrease melatonin activity through effects on MT1, an important melatonin receptor.

ALZHEIMER'S DISEASE

There is strong epidemiologic evidence that exposure to ELF MF is a risk factor for AD. There are now twelve (12) studies of ELF MF exposure and AD or dementia which . Nine (9) of these studies are considered positive and three (3) are considered negative. The three negative studies have serious deficiencies in ELF MF exposure classification that results in subjects with rather

low exposure being considered as having significant exposure. There are insufficient studies to formulate an opinion as to whether radiofrequency MF exposure is a risk or protective factor for AD.

There is now evidence that (i) high levels of peripheral amyloid beta are a risk factor for AD and (ii) medium to high ELF MF exposure can increase peripheral amyloid beta. High brain levels of amyloid beta are also a risk factor for AD and medium to high ELF MF exposure to brain cells likely also increases these cells' production of amyloid beta.

There is considerable in vitro and animal evidence that melatonin protects against AD. Therefore it is certainly possible that low levels of melatonin production are associated with an increase in the risk of AD.

(Davanipour and Sobel, 2012 – Section 13)

STRESS PROTEINS AND DNA AS A FRACTAL ANTENNA FOR RFR

DNA acts as a 'fractal antenna' for EMF and RFR. The coiled-coil structure of DNA in the nucleus makes the molecule react like a fractal antenna to a wide range of frequencies. The structure makes DNA particularly vulnerable to EMF damage.

The mechanism involves direct interaction of EMF with the DNA molecule (claims that there are no known mechanisms of interaction are patently false)

Many EMF frequencies in the environment can and do cause DNA changes.

The EMF-activated cellular stress response is an effective protective mechanism for cells exposed to a wide range of EMF frequencies.

EMF stimulates stress proteins (indicating an assault on the cell).

EMF efficiently harms cells at a billion times lower levels than conventional heating.

Safety standards based on heating are irrelevant to protect against EMF-levels of exposure. There is an urgent need to revise EMF exposure standards. Research has shown thresholds are very low (safety standards must be reduced to limit biological responses). Biologically-based EMF safety standards could be developed from the research on the stress response.

EVIDENCE FOR DISRUPTION OF THE MODULATING SIGNAL

HUMAN STEM CELL DNA DOES NOT ADAPT OR REPAIR

Human stem cells do not adapt to chronic exposures to non-thermal microwave (cannot repair damaged DNA), and damage to DNA in genes in other cells generally do not repair as efficiently. Non-thermal effects of microwaves depend on variety of biological and physical parameters that should be taken into account in setting the safety standards. Emerging evidence suggests that the SAR concept, which has been widely adopted for safety standards, is not useful alone for the evaluation of health risks from non-thermal microwave of mobile communication. Other parameters of exposure, such as frequency, modulation, duration, and dose should be taken into account. Lower intensities are not always less harmful; they may be more harmful. Intensity

windows exist, where bioeffects are much more powerful. A linear, dose-response relationship test is probably invalid for testing of RFR and EMF (as is done in chemicals testing for toxicity).

Resonant frequencies may result in biological effects at very low intensities comparable to base station (cell tower) and other microwave sources used in mobile communications.

These exposures can cause health risk. The current safety standards are insufficient to protect from non-thermal microwave effects.

The data about the effects of microwave at super-low intensities and significant role of duration of exposure in these effects along with the data showing that adverse effects of non-thermal microwave from gsm/UMTS mobile phones depend on carrier frequency and type of the microwave signal suggest that microwave from base-stations/masts, wireless routers, WI-FI and other wireless devices and exposures in common use today can also produce adverse effects at prolonged durations of exposure.

Most of the real signals that are in use in mobile communication have not been tested so far.

Very little research has been done with real signals and for durations and intermittences of exposure that are relevant to chronic exposures from mobile communication. In some studies, so-called “mobile communication-like” signals were investigated that in fact were **different** from the real exposures in such important aspects as intensity, carrier frequency, modulation, polarization, duration and intermittence.

New standards should be developed based on knowledge of mechanisms of non-thermal effects.

Importantly, because the signals of mobile communication are completely replaced by other

signals faster than once per 10 years, duration comparable with latent period, epidemiologic studies cannot provide basement for cancer risk assessment from upcoming new signals.

In many cases, because of ELF modulation and additional ELF fields created by the microwave sources, for example by mobile phones, it is difficult to distinguish the effects of exposures to ELF and microwave. Therefore, these combined exposures and their possible cancer risks should be considered in combination.

As far as different types of microwave signals (carrier frequency, modulation, polarization, far and near field, intermittence, coherence, *etc.*) may produce different effects, cancer risks should ideally be estimated for each microwave signal separately.

The Precautionary Principle should be implemented while new standards are in progress.

It should be anticipated that some part of the human population, such as children, pregnant women and groups of hypersensitive persons could be especially sensitive to the non-thermal microwave exposures.

N. EFFECTS OF WEAK-FIELD INTERACTIONS ON NON-LINEAR BIOLOGICAL OSCILLATORS AND SYNCHRONIZED NEURAL ACTIVITY

A unifying hypothesis for a plausible biological mechanism to account for very weak field EMF bioeffects other than cancer may lie with weak field interactions of pulsed RFR and ELF-modulated RFR as disrupters of synchronized neural activity. Electrical rhythms in our brains can be influenced by external signals. This is consistent with established weak field effects on coupled biological oscillators in living tissues. Biological systems of the heart, brain and gut are dependent on the cooperative actions of cells that function according to principles of non-linear,

coupled biological oscillations for their synchrony, and are dependent on exquisitely timed cues from the environment at vanishingly small levels (Buzsaki, 2006; Strogatz, 2003). The key to synchronization is the joint actions of cells that co-operate electrically – linking populations of biological oscillators that couple together in large arrays and synchronize spontaneously. Synchronous biological oscillations in cells (pacemaker cells) can be disrupted by artificial, exogenous environmental signals, resulting in desynchronization of neural activity that regulates critical functions (including metabolism) in the brain, gut and heart and circadian rhythms governing sleep and hormone cycles (Strogatz, 1987). The brain contains a population of oscillators with distributed natural frequencies, which pull one another into synchrony (the circadian pacemaker cells). Strogatz has addressed the unifying mathematics of biological cycles and external factors disrupt these cycles (Strogatz, 2001, 2003). “*Rhythms can be altered by a wide variety of agents and that these perturbations must seriously alter brain performance*” (Buzsaki, 2006).

“Organisms are biochemically dynamic. They are continuously subjected to time-varying conditions in the form of both extrinsic driving from the environment and intrinsic rhythms generated by specialized cellular clocks within the organism itself. Relevant examples of the latter are the cardiac pacemaker located at the sinoatrial node in mammalian hearts (1) and the circadian clock residing at the suprachiasmatic nuclei in mammalian brains (2). These rhythm generators are composed of thousands of clock cells that are intrinsically diverse but nevertheless manage to function in a coherent oscillatory state. This is the case, for instance, of the circadian oscillations exhibited by the suprachiasmatic nuclei, the period of which is known to be determined by the mean period of the individual neurons making up the circadian clock (3–

7). *The mechanisms by which this collective behavior arises remain to be understood.*"

(Strogatz, 2001; Strogatz, 2003)

Synchronous biological oscillations in cells (pacemaker cells) can be disrupted by artificial, exogenous environmental signals, resulting in desynchronization of neural activity that regulates critical functions (including metabolism) in the brain, gut and heart and circadian rhythms governing sleep and hormone cycles. The brain contains a population of oscillators with distributed natural frequencies, which pull one another into synchrony (the circadian pacemaker cells). Strogatz has addressed the unifying mathematics of biological cycles and external factors disrupt these cycles.

EMF AND RFR MAKE CHEMICAL TOXINS MORE HARMFUL

EMF acts on the body like other environmental toxicants do (heavy metals, organic chemicals and pesticides). Both toxic chemicals and EMF may generate free radicals, produce stress proteins and cause indirect damage to DNA. Where there is combined exposure the damages may add or even synergistically interact, and result in worse damage to genes.

EMF IS SUCCESSFULLY USED IN HEALING AND DISEASE TREATMENTS

"The potential application of the up-regulation of the HSP70 gene by both ELF-EMF and nanosecond PEMF in clinical practice would include trauma, surgery, peripheral nerve damage, orthopedic fracture, and vascular graft support, among others. Regardless of pulse design, EMF technology has been shown to be effective in bone healing [5], wound repair [11] and neural regeneration [31,36,48,49,51,63,64,65,66]. In terms of clinical application, EMF-induction of elevated levels of hsp70 protein also confers protection against hypoxia [61] and aid myocardial function and survival [20,22]. Given these results, we are particularly interested in the

translational significance of effect vs. efficacy which is not usually reported by designers or investigators of EMF devices. More precise description of EM pulse and sine wave parameters, including the specific EM output sector, will provide consistency and “scientific basis” in reporting findings.” “The degree of electromagnetic field-effects on biological systems is known to be dependent on a number of criteria in the waveform pattern of the exposure system used; these include frequency, duration, wave shape, and relative orientation of the fields [6,29,32,33,39,40]. In some cases pulsed fields have demonstrated increased efficacy over static designs [19,21] in both medical and experimental settings.”(Madkan et al, 2009)

ELF-EMF AND RFR ARE CLASSIFIED AS POSSIBLE CANCER-CAUSING AGENTS

WHY ARE GOVERNMENTS NOT ACTING?

The World Health Organization International Agency for Research on Cancer has classified wireless radiofrequency as a Possible Human Carcinogen (May, 2011)*. The designation applies to low-intensity RFR in general, covering all RFR-emitting devices and exposure sources (cell and cordless phones, WI-FI, wireless laptops, wireless hotspots, electronic baby monitors, wireless classroom access points, wireless antenna facilities, etc). The IARC Panel could have chosen to classify RFR as a Group 4 – Not A Carcinogen if the evidence was clear that RFR is not a cancer-causing agent. It could also have found a Group 3 designation was a good interim choice (Insufficient Evidence). IARC did neither.

NEW SAFETY LIMITS MUST BE ESTABLISHED – HEALTH AGENCIES SHOULD ACT NOW

Existing public safety limits (FCC and ICNIRP public safety limits) do not sufficiently protect public health against chronic exposure from very low-intensity exposures. If no mid-course

corrections are made to existing and outdated safety limits, such delay will magnify the public health impacts with even more applications of wireless-enabled technologies exposing even greater populations around the world in daily life.

SCIENTIFIC BENCHMARKS FOR HARM PLUS SAFETY MARGIN = NEW SAFETY LIMITS THAT ARE VALID

Health agencies and regulatory agencies that set public safety standards for ELF-EMF and RFR should act now to adopt new, biologically-relevant safety limits that key to the lowest scientific benchmarks for harm coming from the recent studies, plus a lower safety margin. Existing public safety limits are too high by several orders of magnitude, if prevention of bioeffects and minimization or elimination of resulting adverse human health effects. Most safety standards are a thousand times or more too high to protect healthy populations, and even less effective in protecting sensitive subpopulations.

SENSITIVE POPULATIONS MUST BE PROTECTED

Safety standards for sensitive populations will more likely need to be set at lower levels than for healthy adult populations. Sensitive populations include the developing fetus, the infant, children, the elderly, those with pre-existing chronic diseases, and those with developed electrical sensitivity (EHS).

PROTECTING NEW LIFE – INFANTS AND CHILDREN

Strong precautionary action and clear public health warnings are warranted immediately to help prevent a global epidemic of brain tumors resulting from the use of wireless devices (mobile phones and cordless phones). Common sense measures to limit both ELF-EMF and RFR in the

fetus and newborn infant (sensitive populations) are needed, especially with respect to avoidable exposures like baby monitors in the crib and baby isolettes (incubators) in hospitals that can be modified; and where education of the pregnant mother with respect to laptop computers, mobile phones and other sources of ELF-EMF and RFR are easily instituted. Wireless laptops and other wireless devices should be strongly discouraged in schools for children of all ages.

[top]

STANDARD OF EVIDENCE FOR JUDGING THE SCIENCE

The standard of evidence for judging the scientific evidence should be based on good public health principles rather than demanding scientific certainty before actions are taken.

WIRELESS WARNINGS FOR ALL

The continued rollout of wireless technologies and devices puts global public health at risk from unrestricted wireless commerce unless new, and far lower exposure limits and strong precautionary warnings for their use are implemented.

EMF AND RFR ARE PREVENTABLE TOXIC EXPOSURES

We have the knowledge and means to save global populations from multi-generational adverse health consequences by reducing both ELF and RFR exposures. Proactive and immediate measures to reduce unnecessary EMF exposures will lower disease burden and rates of premature death.

DEFINING A NEW 'EFFECT LEVEL' FOR RFR

On a precautionary public health basis, a reduction from the BioInitiative 2007 recommendation

of 0.1 $\mu\text{W}/\text{cm}^2$ (or one-tenth of a microwatt per square centimeter) for cumulative outdoor RFR down to something three orders of magnitude lower (in the low nanowatt per square centimeter range) is justified.

A scientific benchmark of 0.003 $\mu\text{W}/\text{cm}^2$ or three nanowatts per centimeter squared for 'lowest observed effect level' for RFR is based on mobile phone base station-level studies. Applying a ten-fold reduction to compensate for the lack of long-term exposure (to provide a safety buffer for chronic exposure, if needed) or for children as a sensitive subpopulation yields a 300 to 600 picowatts per square centimeter precautionary action level. This equates to a 0.3 nanowatts to 0.6 nanowatts per square centimeter as a reasonable, precautionary action level for chronic exposure to pulsed RFR.

These levels may need to change in the future, as new and better studies are completed. We leave room for future studies that may lower or raise today's observed 'effects levels' and should be prepared to accept new information as a guide for new precautionary actions.

More Legal Decisions Against Wireless From Around The World

- **France:** [French High Court bans wireless smart meter for EHS](#): The Judge of the Appeals of the High Court of First Instance of Grenoble, in a decision of September 20 2017, forbid ENEDIS SA to install a "Linky"

wireless smart meter in the home of a couple owners who refused. Mr and Mrs F., domiciled in MEYLAN (Isère), had informed ENEDIS that they refused the installation of a wireless electric meter at their home, especially given the fact that their son was Electro-Hyper-Sensitive (EHS) and that the Linky meter would cause a disturbance to the health of their son.

(Next-up News, September 23 2017)

- **Spain:** [Teacher awarded 100% of salary](#) (The Spanish Labour Court of Madrid recognised the permanent incapacity of a college professor who suffered from CFS and environmental EHS and awarded 100% of the base salary, 2011).
- **Spain:** FM, MCS and ES recognised as permanent disability in Spain: At Social Court, Number 4, in Castellón, for the first time in Spain, permanent disability has been recognized as a great disability in a patient afflicted with fibromyalgia (FM), multiple chemical sensitivity (MCS) and electrosensitivity (ES). Ruben had to sell his house and move home to a place in the mountains, only accompanied by Rosalina, his wife, who assists him and who can now also benefit from a help. (["Es el fin a cuatro años de calvario, enfermo y aislado en Betxí"](#) El Periódico Mediterráneo, March 1 2017)

- **Spain:** ["A telecoms engineer with electrosensitivity is awarded disability benefits because of his inability to work in WiFi areas"](#) (Ana Macpherson, Lavanguardia, August 2 2016, where the High Court in Madrid awarded disability benefit to Ricardo de Francesco, a 47-year-old telecoms engineer with Ericsson, who suffers tinnitus, headaches and sleeplessness from cellphones. This overturns refusal of the National Institution of Social Security (INSS) which in 2014 denied disability benefits on the grounds that there was then insufficient medical evidence.)

Patricia Esteban: ["Spain: High Court of Madrid Ruling Recognizes "Electrosensitivity" as Grounds for Total Permanent Disability"](#)

(noticias.juridicas.com, August 3 2016)

UK: [Employment and Support Allowance awarded \(Document ref. no.: 171\)](#) (Under the Social Entitlement Chamber, ESA Regulation 29, Exceptional Circumstances, 2b: "the claimant suffers from some specific disease or bodily or mental disablement"; the Judge stated: "Were it not for the EMR the appellant would lead a normal life with little or no functional impairment ... Considerations included the fact that the appellant would be unable to work in any 'normal' working environment indoors or outdoors -

anywhere there was WiFi, mobile phones or mobile phone masts ... Taken together the prospects of the appellant being able to 'work' ... were effectively nil." 2012)

~~**US American Disability Access Board: MCS and EHS (General Issues: "The Board recognizes that multiple chemical sensitivities and electromagnetic sensitivities may be considered disabilities under the ADA if they so severely impair the neurological, respiratory or other functions of an individual that it substantially limits one or more of the individual's major life activities. The Board plans to closely examine the needs of this population, and undertake activities that address accessibility issues for these individuals. The Board plans to develop technical assistance materials on best practices for accommodating individuals with multiple chemical sensitivities and electromagnetic sensitivities."**~~

~~<https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/background/ada-accessibility-guidelines-for-recreation-facilities/general-issues>~~

~~**US American Disability Access Board: Report (Background: Final Rule Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Recreation Facilities, 2000, page 11: Electromagnetic Fields: "For**~~

~~people who are electromagnetically sensitive, the presence of cell phones and towers, portable telephones, computers, fluorescent lighting, unshielded transformers and wiring, battery re-chargers, wireless devices, security and scanning equipment, microwave ovens, electric ranges and numerous other electrical appliances can make a building inaccessible. The National Institute for Occupational Safety and Health (NIOSH) notes that scientific studies have raised questions about the possible health effects of EMF's. NIOSH recommends the following measures for those wanting to reduce EMF exposure—informing workers and employers about possible hazards of magnetic fields, increasing workers' distance from EMF sources, using low EMF designs wherever possible (e.g., for layout of office power supplies), and reducing EMF exposure times."~~

USA: ["Court rules for Berkeley in cellphone right to know case"](#) (Berkeleyside, September 22 2015: Federal district judge Edward Chen ruled in favor of the City of Berkeley's cellphone 'right to know' ordinance against a First Amendment rights challenge by the CTIA; [Preliminary Judgement](#))

- USA: ["Judge rules electric co-op violated discrimination laws"](#) (Plumas County News, May 4th 2015, where a utility was required to restore an

analog meter for an EHS customer and not to discriminate against the EHS customer in setting higher charges for installation or reading the meter)

<https://smartmeternewsupdates.wordpress.com/2015/05/04/judge-rules-electric-co-op-violated-discrimination-laws/>

~~The judge ruled that Plumas Sierra Rural Electric Cooperative smart meters opt-out fees violate state discrimination laws in a case where the utility cut off electricity 14 months ago for a customer suffering from electromagnetic hypersensitivity. In the small claims battle, Hart submitted a letter from his physician confirming his diagnosis and that symptoms occur when Hart is exposed to radio frequency from smart meters emitting microwave radiation. PSREC terminated Hart's electricity after he refused to pay an "opt-out fee" for use of an analog meter instead of a smart meter. The charges include a \$141 initial fee and \$15 monthly thereafter. The disagreement left Hart and his wife living without electricity in an all electric home in the Sierra Nevada. He reported they could not use their refrigerator and had no hot running water. The couple depended on a wood stove for heat, cooking and heating water.~~

~~In her ruling, Plumas County Superior Court Judge Janet Hilde ordered PSREC to cancel the opt-out fee and monthly charge for reading the analog meter. She also ordered the utility to allow Hart to self-read the device. Hilde cited California law~~

~~stating public utilities cannot prejudice, disadvantage or require different rates or deposit amounts from a person because of a medical condition.~~

USA: [LAUSD accommodates ES teacher](#) (Los Angeles Unified School Board provides WiFi-free environment without radiation for Mrs Anura Lawson, a teacher made electrically sensitive by the school WiFi installation earlier in the year, 2014)

~~<http://www.electrosmogprevention.org/public-health-alert/lausd-accommodates-teacher-who-fell-ill-after-wireless-installed/>~~

~~**Oct. 10, 2014 — On September 18, 2014, LAUSD, the second largest public school district in the US, officially accommodated teacher Ms. Anura Lawson by approving her request to have the Wi-Fi turned off in her classroom** during the 2014-2015 school year and alternatively approving a reassignment to a different school site where Wi-Fi has yet to be installed. The Middle School teacher reported that she fell seriously ill after a wireless system upgrade in her school in Spring 2014. She described her cardiac symptoms during a May 28, LAUSD Common Core Tech Project meeting. Ms. Lawson also stated, “The students are having~~

~~nosebleeds and the main offices are refusing to do incident reports. I have had two seventh grade students bleeding out of their ears.” This is the first accommodation in a US public school system for microwave sickness.—~~

• ~~**USA: California state legislature recognizes people with electromagnetic sensitivities as disabled:**~~

~~<https://smartmeterharm.org/2017/09/15/california-legislature-recognizes-people-with-electromagnetic-sensitivities-as-disabled/>~~

~~"Since May 2017, the California Legislature has provided ADA accommodation for people disabled by electromagnetic sensitivities (EMS). This is the first California legislative session to acknowledge EMS and to arrange accommodation and access for the EMF disabled so that they can participate at hearings. (Smart Meter Harm, September 15, 2017)~~

~~**More evidence for, and recognition of, ES and EHS as a 'functional impairment' and 'disability'**~~

Governmental and advisory groups on ES equality rights

- **Council of Europe:** [Resolution 1815](#) (Parliamentary Assembly, 2011)

Point 8.1.4:

"Pay particular attention to 'electrosensitive' people who suffer from a syndrome of intolerance to electromagnetic fields and introduce special measures to protect them, including the creation of wave-free areas not covered by the wireless network."

- **European Union:** [Parliamentary Resolution \(2008/2211\(IND\)\)](#) (2009)

Point 28:

"Calls on Member States to follow the example of Sweden and to recognise persons that suffer from electrohypersensitivity as being disabled so as to grant them adequate protections as well as equal opportunities."

- ~~**European Union: PECCEM: (October 25 2016):**~~

~~"Open letter to the European Economic and Social Committee (EESC): to repair the damage caused by the conflicts of interest and procedural irregularities in its midst arising from the adoption of the counter-opinion on electromagnetic hypersensitivity (EHS)"~~

~~**Groups on ES equality rights and non-thermal effects**~~

~~-American Academy of Environmental Medicine: "Recommendations Regarding Electromagnetic and Radiofrequency Exposure" (2012):-~~

~~*"Physicians of the American Academy of Environmental Medicine recognize*~~

that patients are being adversely impacted by electromagnetic frequency (EMF) and radiofrequency (RF) fields and are becoming more electromagnetically sensitive."

Freiburger Appeal by over 1,000 physicians: "International Appeal 2012" (2002, 2012):

<http://freiburger-appell-2012.info/en/recommendations.php?lang=EN>

Recommendation 7:-

"Identify and clearly mark protected zones for electrohypersensitive people; establish public areas without wireless access or coverage, especially on public transport, similar to smoke free areas for nonsmokers."

- **International Commission for Electromagnetic Safety (ICEMS):** "Benevento Resolution" (2006):

Strategy required, no. 6.7:-

"Designate wireless free zones in cities, in public buildings (schools, hospitals, residential areas) and, on public transit, to permit access by persons who are hypersensitive to EMF."

- ~~International Commission on Non-Ionizing Radiation Protection (ICNIRP): Documents recognizing ES symptoms and the need for non-thermal limits (2002, 2010, 2014):~~

~~People Being Protected:-~~

~~"Different groups in a population may have differences in their ability to tolerate a particular NIR exposure. For example, children, the elderly, and some chronically ill people might have a lower tolerance for one or more forms of NIR exposure than the rest of the population. Under such circumstances, it may be useful or necessary to develop separate guideline levels for different groups within the general population, but it may be more effective to adjust the guidelines for the general population to include such groups. Some guidelines may still not provide adequate protection for certain sensitive individuals nor for normal individuals exposed concomitantly to other agents, which may exacerbate the effect of the NIR exposure."~~

Legal cases involving non-thermal effects:

- ~~Alaskan Supreme Court: "Award for RF Radiation Injury Below Thermal Exposure Limit" (LBA Group, 2007):-~~

~~"The award was based on the psychological and cognitive effects of RF radiation and over-exposure. This decision is significant because the FCC~~

RF limit is designed to keep people from being heated and ignores evidence of other adverse biological effects at much lower levels."

- ~~Australia: "The Ross House Electrical Substation Workcare compensation case, Melbourne Victoria, 1991-1992." Workplace Chronic Fatigue Syndrome (CFS) symptoms attributed to exposure to electromagnetic fields (EMF) due to close proximity to an electrical substation Compiled Jan-Feb. 1999. Sick Building Syndrome: 4 cases of chronic fatigue symptoms in one office directly above an electrical substation (EMFacts Consultancy).~~
- ~~Berkeley City Council, California, USA: "Berkeley Votes to Warn Cellphone Buyers of Health Risks" (Mother Jones, May 13th 2015); "Judge lets Berkeley require cell phone warnings" (SFGate, January 28 2016)~~
- ~~Canada: John D. Evans, a World War II veteran, had his malignant melanoma recognized as having been related to his Royal Canadian Air Force service as a Wireless/Radar Mechanic by the Veterans Review and~~

Appeal Board in 1997. (Bridlewood Electromagnetic Fields (EMFs) Information Service)

- **Denver, Colorado, USA:** "FM Radio Cancer Suit Settled" (Microwave News, May/June 1990, p.15):

KYGO, an FM radio station near Denver, Colorado, settled a lawsuit alleging radiation-induced cancer out of court for an undisclosed sum. The case alleged that RF radiation from Jefferson Pilot Broadcasting Inc. had caused Beryl Main to develop non-Hodgkin's lymphoma. An EPA survey in 1986 measured 300 microWatts per cm squared on the camp which Beryl Main owned and operated with his wife. KYGO lowered its transmitter output from 100 kW to 1 kW and agreed to limit radiation levels to 10 microWatts per cm squared; KYGO later relocated its transmitter

- **Italy: Ivrea Court:** "Italian court finds link between cell phone use and tumor" (ABC News, April 20 2017):

Roberto Romeo, a Telecom Italia employee, "was awarded monthly social

security payments after a court found that his brain tumor was caused by improper use of a company-issued cellphone".

- "Italian court rules mobile phone use caused brain tumour" (The Guardian, April 21 2017)

Mia de Graaf: "Cell phones DO fuel tumors, Italian court rules: Man wins \$7,500 a year for life after developing brain mass 'from using his company phone'" (Daily Mail, April 21 2017)

Sophie Curtis: "Brain tumour linked to excessive mobile phone use in 'landmark' court case" (Daily Mirror, April 21 2017)

A man in Italy has won a landmark court case in which he claimed excessive use of his mobile phone gave him a tumour.

Pierro Mastrosimone: "Employee compensated after Italian court recognises link between mobile phone use and brain tumor" (Giambrone Law, April 21 2017)

-
- Italian Supreme Court: "Italian Supreme Court rules mobile phones can cause brain tumours" (In House Lawyer, 2012):

"The Italian Supreme Court also hit the news after ruling in an employment case that mobile phones can cause brain tumours in heavy users."

- ~~Italian Court: "Vatican Radio officials convicted in 'electro smog' case" (ABC News, 2005; Report 2010; Supreme Court Fine, 2011):~~
"The case sprang from a medical report released in 2001 by a public health agency that showed unusually high numbers of people living near a forest of Vatican Radio antennas to the north of Rome who contracted or died from leukaemia."

- ~~South Korea: award for family of brain tumor victim who had worked at Samsung (Reuters: "Samsung worker's family wins brain tumor case" CBS News, November 14 2017)~~

- ~~USA: "Court victory is a first for cell-phone programmers" (Sun Sentinel, Florida, October 2 2005, about Sharesa Price who was awarded \$30,000 towards medical expenses for a brain tumour caused by radio frequency radiation).~~

- USA: "Berkeley cell phone warning law upheld by federal appeals court"
(SF Gate, April 21 2017)

"Berkeley can require retailers to warn their cell phone customers about the possible radiation effects of carrying switched-on phones close to their bodies, a federal appeals court ruled Friday. The cell phone industry sued to block enforcement of the ordinance, calling it an "inflammatory" message that violated retailers' freedom of speech. But the Ninth U.S. Circuit Court of Appeals in San Francisco, in a 2-1 ruling, said the warning was factually accurate, based on findings by the Federal Communications Commission about safe radiation levels, and was in the public interest. Both the FCC and the city were entitled to conclude that "this compelled disclosure is reasonably related to protection of the health and safety of consumers," Judge William Fletcher said in the majority opinion."

[No. 16-15141 D.C. No. 3:15-cv-02529-EMC OPINION](#)

- USA: Judge F H Weisberg (Superior Court District of Columbia allows evidence on cellphone cases, August 8th 2014).

"WSJ Reports Murray Cellphone Cancer Case May Cost Wireless Industry Over 1.9 Billion Dollars" (November 2015):

"It is fair to say that we are no longer talking about mere precaution of

uncertain risk, but about prevention of highly probable and known risks. Based on the accumulating evidence—the Benevento Statement, BioInitiative Report, London Report—all show proof the health effects pertain to ROS—Reactive Oxygen Species, cellular changes, effects on DNA, fertility, and neurobehavioral effects—e.g. deficits in memory, mood changes, fatigue, headache, as well as electro hypersensitivity and cancer. It is now fairly certain that there will be widespread adverse public health impacts. What remains uncertain is how many will be affected..."

— **Enforced environmental radiation violates the Nuremberg Code**

— **Dr. Andrew Goldsworthy**

— <https://inthesenewtimes.com/2010/11/14/andrew-goldsworthy-on-smart-meters/> (November 14 2010)

— “One thing that I did not mention in my original communication, but is very relevant, is that the enforced introduction of wireless smart meters is a clear contravention of the Nuremberg Code (See http://en.wikipedia.org/wiki/Nuremberg_Code) which forbids the performance of experiments on human beings without their consent. Insofar as the long term safety of continual irradiation from these devices has never been tested and many people (including many eminent scientists) believe

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~~that it is potentially harmful, the whole nation is being made a part of an uncontrolled experiment on their electromagnetic safety.~~

~~— In fact, it doesn't matter whether they turn out to be harmful or not; the fact~~

~~that the experiment is being performed at all without the expressed permission of the consumer is a contravention of the Nuremberg Code. If we are to adhere to the Code, no consumer should have a wireless smart meter fitted without their voluntary consent after being warned that some scientists believe them to be a health hazard. Furthermore, should the property change hands, any new consumer should have the right to ask for the meter to be removed and replaced by a conventional one.~~

~~— Where governments allow civilian populations to be irradiated with environmental electromagnetic exposures which are classified internationally as 2B human cancer agents and are known neurotoxins, they are acting illegally and in contravention of the international Nuremberg Code of 1947. Such irradiation is known to be potentially harmful yet each member of the general population has not been consulted or given their individual consent to such experiments on their human health. In the case of children it is unlikely that any government could sanction such radiation experiments.”~~

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~~**BIO: Dr. Andrew Goldsworthy**, MSc PhD. Andrew Goldsworthy is an Honorary Lecturer in Biology at Imperial College London. He obtained a First-Class Honours Degree in Botany, followed by a PhD at the University College of Swansea. GOLDSWORTHY, A 1984 The cell electric. New Scientist 102 (1407), 14-15. GOLDSWORTHY, A 1996 Electrostimulation of cells by weak electric currents. In "Electrical Manipulation of Cells". Eds. Lynch, P., Davey, M.R. (Chapman and Hall, New York).~~

Regulations, guidelines and bills limiting WiFi, cellphone, tower and other EM exposures:

- **France:**
Protection for children: [WiFi banned in nurseries, limited in primary schools](#) (2015).
- **Germany, Switzerland:** [Bavaria 2007; Hesse 2010; Frankfurt 2006; Thurgau 2008:](#)

- Bavarian Parliament (June 21 2007): "If a wireless network is installed, the access points should only be turned on during active use ... prefer the use of wired network solutions whenever possible."
- Parliament of Hesse (April 9 2010): BfS (Federal Office for Radiation Protection) 2005 recommends **"wireless access points shall not be placed in areas where people spend a considerable amount of time such as at a workplace, i.e. in our case the rooms of a school."**
- School Department of the City of Frankfurt (FR08/06/06): "as long as the safety of wireless communication is not clarified ... WLAN networks must not be used at Frankfurt schools."
- Governing Council of Thurgau Canton (August 4 2008): "a conventional wired network should be given preference over a wireless network."

●—**Israel:**

- ~~Haifa, Israel's third largest city, disconnects WiFi: [Local News](#) (April 18 2016) ([trans.](#); [trans.](#))~~
- ~~Ministry of Education (August 27 2013): **"stop the installation of wireless networks in classrooms prior to the first grade and limit the use of WiFi between first and third grades; teachers are**~~

~~required to turn off mobile phones and WiFi routers when they are not being used." (list)~~

~~• Italy:~~

- ~~◦ "Italian town shuts down Wi-Fi over health fears" (The Local, January 8 2016)~~
- ~~◦ "Turin could slash Wi-Fi over 'radiation' concerns" (The Local, July 25 2016)~~

- **Russia (RNCNIRP) (2011) "Usage of a mobile phone by children and adolescents under 18 years old is not recommended by the Sanitary Rule SanPiN 2.1.8/2.2.4.1190-03, and mobile phone use requires implementation of precautionary measures in order to prevent health risks. Mobile phone use by pregnant women is not recommended in order to prevent risk for a fetus." (The Sanitary Rule "Hygienic Requirements for Placement and Operation of Onshore Mobile Radio Devices" (SanPiN 2.1.8/2.2.4.1190-03, p.6.9). Moscow, Federal Center for State Sanitary and Epidemiological Supervision of the Ministry for Health Protection of the Russian Federation, 2003. (RNCNIRP, 2011: "[Electromagnetic Fields from Mobile Phones: Health Effect on Children and Teenagers](#)")**

- ~~• **The Russian National Committee on Non-Ionizing Radiation (RNCIRP) (2012): "officially recommended that Wi-Fi not be used in schools." (list)**~~

~~United States: Job accommodations for people with electrosensitivity:~~

~~Electrosensitivity has been included under the American Disability Access Board since the 1990s (General Issues):~~

~~<https://www.access-board.gov/guidelines-and-standards/buildings-and-sites/about-the-ada-standards/background/ada-accessibility-guidelines-for-recreation-facilities/general-issues>~~

~~Job Accommodation Network (JAN), the US Department of Labor: the Office for Disability Employment Policy (ODEP):~~

~~*Accommodation Ideas for Electromagnetic Sensitivity*~~

~~*Accommodation ideas for individuals with electromagnetic sensitivity:*~~

- ~~• Allow communication via typewriter or handwritten notes rather than via computer or cover the computer with Plexiglas or other shielding material~~
- ~~• Provide headset/handset extenders or alternate headsets to lengthen the distance between devices that trigger symptoms and the employee's body~~
- ~~• Change the employee's shift to allow for less exposure to others' devices~~

- ~~Relocate workplace away from areas where symptoms are triggered. This may include limiting certain types of devices in the vicinity of the employee's workstation~~
- ~~Allow telework (Note: regarding work at home, unless the employee wants to work at home, other options should be explored first to keep the employee in the workplace)~~
- ~~Allow the employee to meet with others in areas where triggers are minimized or allow remote access to meetings or activities that must take place in areas that trigger symptoms.~~
- ~~Provide wired telephones and network connections~~
- ~~Provide building wide and/or workspace shielding of equipment and devices, for example add filters to fluorescent lights and tape electrical cords~~

Complainant's Personal Evidence of Electromagnetic Sensitivity

Complainant presented evidence of electromagnetic sensitivity going back many years. Complainant submitted performance reports from 1989-1991 where

he worked for the Phila. Comm. on Human Relations, showing he refused to work on computers even though it would have made his job easier. (Complainant Exhibit 3).

Complainant submitted correspondence from 2007 with George Lechter CEO of Safe Technologies Inc., a company which makes Radiation-Free computer monitors. (Complain. Exhib 2). In 2007 everyone wanted a computer. How many people were looking for radiation-free monitors in 2007?

Complainant submitted correspondence with Comcast to indicate that he had requested the WIFI radiation be shut off 7 years ago in 2011, and a hard wire connection installed in its stead. (Complainant exhib 2B). Most people want the convenience of Wifi.

Complainant submitted letters from four medical professionals who had treated him attesting to his EHS and worsening insomnia due to exposure to RF radiation. (Complainant exhib #1)

Complainant stated in sworn testimony that he first discovered his electromagnetic sensitivity about 30 years ago while first using an electric typewriter. He found that whenever he sat at that typewriter he couldn't think straight. He said that ever since he found that when he was near an electromagnetic field, after a short time he

couldn't think clearly, and that that night his sleep would be worse. (Transcript p. 112, 1-13)

Insomnia

Defendant's witness Mark Israel also stated that in his review of the literature that he found no adverse effect on sleep from exposure to RF fields in the home or from cell phones. (Mark Israel's Direct Testimony p.2). ~~To counter this, the Complainant presented a study in the **Journal of Chemical Neuroanatomy**—*Microwave frequency electromagnetic fields (EMFs) produce widespread neuropsychiatric effects including depression*—It states (p.2, table 4), that **sleep disturbance / insomnia is the number one symptom reported following microwave EMF exposure.** (Complainant Exhib. 9).~~

~~<https://www.sciencedirect.com/science/article/pii/S0891061815000599>~~

~~**NOTE:** This study from a peer reviewed journal, contains evidence that is very important for the Complainant's case. At the hearing, Defendant counsel argued that this was an incomplete version of the study and that it was somehow~~

~~confusing, and based on that it was excluded it. (Hearing Transcript p.151-23-25,
p.152-1-25 +19-20)~~

~~Complainant had provided a link to the complete study from Science Direct, a highly reputable website. Furthermore, **this study was published under a Creative Commons license, meaning it was available for anyone to read without charge.** The Defendant could have verified it with the click of a mouse. In the modern world, scientists and others send links to studies all the time, and often introduce those studies with abstracts. The reference to insomnia was in table 4 and was not presented conditionally. I ask the court to visit this website and verify that the entire study is there, easily available and to allow it into evidence.~~

~~<https://www.sciencedirect.com/science/article/pii/S0891061815000599>~~

RF Radiation and Electromagnetic fields created by Defendant's AMI meter may lower melatonin.

Complainant presented the diagnosis given to him by the **National Institute of Health** after considerable testing by them. (Complainant exhib. 1B) It shows a

history of insomnia related to a sleep cycle disturbance called “phase lag sleep disorder.” Sleep cycles are mediated by melatonin, and when melatonin levels are lowered it can disturb sleep. Research (see below) has shown that melatonin levels may be lowered by exposure to both 60 cycle electromagnetic fields and RF radiation such as are created by the Defendant’s AMI meter. The Defendant’s AMI meter creates RF radiation directly and it also creates electromagnetic fields via its switched mode power supply producing transient frequencies on house wiring. (Transcript p.56 1-5, p.59, p.62, 22-25, p.65,66 -20-24, p.68-6-25, p.69, 1-12) and Complainant Exhib 26).

Complainant asserts that his insomnia was severely aggravated after Defendant installed its AMI meter on his neighbor’s adjoining wall just 12 inches from Complainant’s residence. The lowering of melatonin levels may be one possible mechanism by which the AMI meter negatively affects Complainant’s sleep.

Some studies are from **The Bioinitiative 2012 – Conclusions –**

Included:

<http://www.bioinitiative.org/conclusions/>

Melatonin, Breast Cancer And Alzheimer's Disease

MELATONIN AND BREAST CANCER

Conclusion: Eleven (11) of the 13 published epidemiologic residential and occupational studies are considered to provide (positive) evidence **that high ELF MF exposure can result in decreased melatonin production.** The two negative studies had important deficiencies that may certainly have biased the results.

There is sufficient evidence to conclude that long-term relatively high ELF MF exposure can result in a decrease in melatonin production. It has not been determined to what extent personal characteristics, e.g., medications, interact with ELF MF exposure in decreasing melatonin production

Conclusion: **New research indicates that ELF MF exposure, in vitro, can significantly decrease melatonin activity through effects on MT1, an important melatonin receptor.**

Below are some studies that found lowered melatonin levels from exposure to electromagnetic fields or RF radiation, and/ or sleep disturbances from those sources:

Indian J Physiol Pharmacol 2014; 58(4) : 395–399

Original Article

Effect of mobile usage on serum melatonin levels among medical students

Abha Shrivastava* and Yogesh Saxena

Department of Physiology,
Himalayan Institute of Medical Sciences,
Swami Rama Himalayan University,
Jolly Grant, Dehradun – 248 140

Abstract

Exposure to extremely low frequency (ELF) electromagnetic radiations from mobile phones may affect the circadian rhythm of melatonin in mobile users. The study was designed with objective to evaluate the influence of mobile phone on circadian rhythm of melatonin and to find the association if any between the hours of mobile usage with serum melatonin levels. All the volunteers medical students using mobiles for > 2 hrs/day were included in high users group and volunteers who used mobile for ≤ 2 hrs where included in low users group. Both high and low users volunteers were sampled three times in the same day (Morning-3-4 am, Noon 1-2 pm, Evening-5-6 pm) for estimation of serum melatonin levels. Comparison of sernum melatonin levels in high users and low users were done by Mann Whitney "U" Test. Reduced morning melatonin levels (3-4 am) was observed in high users (> 2 hrs/day) i.e high users had a disturbed melatonin circadian rhythm. There was a negative correlation between melatonin secretion and hours of mobile usages.

FULL STUDY available at link:

“High use of a mobile phone resulted in “disturbed melatonin circadian rhythm.”

https://www.ijpp.com/IJPP%20archives/2014_58_4/395_399.pdf

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The Schwarzenburg Shut –Down Study

Urinary melatonin levels were monitored prior to and following the closing down of the Schwarzenburg short wave radio transmitter. This showed a significant rise in melatonin after the transmitter was turned off.

Source Complainant’s exhibit #5

<file:///C:/Users/Alanh/Documents/Melatonin%20Schwarzenburg%20Melatonin.pdf>

[f](#)

FULL STUDY at LINK

Effect of Short-Wave (6–22 MHz) Magnetic Fields on Sleep Quality and Melatonin Cycle in Humans: The Schwarzenburg Shut-Down Study

Ekkehardt-Siegfried Altpeter, Martin Rössli,* Markus Battaglia, Dominik Pfluger, Christoph E. Minder, and Theodor Abelin

Department of Social and Preventive Medicine, University of Berne, Berne, Switzerland

This paper describes the results of a unique “natural experiment” of the operation and cessation of a broadcast transmitter with its short-wave electromagnetic fields (6–22 MHz) on sleep quality and melatonin cycle in a general human population sample. In 1998, 54 volunteers (21 men, 33 women) were followed for 1 week each before and after shut-down of the short-wave radio transmitter at Schwarzenburg (Switzerland). Salivary melatonin was sampled five times a day and total daily excretion and acrophase were estimated using complex cosinor analysis. Sleep quality was recorded daily using a visual analogue scale. Before shut down, self-rated sleep quality was reduced by 3.9 units (95% CI: 1.7–6.0) per mA/m increase in magnetic field exposure. The corresponding decrease in melatonin excretion was 10% (95% CI: –32 to 20%). After shutdown, sleep quality improved by 1.7 units (95% CI: 0.1–3.4) per mA/m decrease in magnetic field exposure. Melatonin excretion increased by 15% (95% CI: –3 to 36%) compared to baseline values suggesting a rebound effect. Stratified analyses showed an exposure effect on melatonin excretion in poor sleepers (26% increase; 95% CI: 8–47%) but not in good sleepers. Change in sleep quality and melatonin excretion was related to the extent of magnetic field reduction after the transmitter’s shut down in poor but not good sleepers. However, blinding of exposure was not possible in this observational study and this may have affected the outcome measurements in a direct or indirect (psychological) way. *Bioelectromagnetics* 27:142–150, 2006. © 2005 Wiley-Liss, Inc.

Symptoms of Ill Health Ascribed to Electromagnetic Field Exposure—A Questionnaire Study

“Sleep disorders (58%), headaches (41%), nervousness or distress (19%), fatigue (18%), and concentration difficulties (16%) were most common complaints”

FULL STUDY Available at link:

file:///C:/Users/Alanh/Documents/Roosli_IntJEnvironHyg_2004.pdf

Martin Roosli, Mirjana Moserc, Yvonne Baldinia, Martin Meiere, Charlotte Braun-Fahrhinda

Institute of Social and Preventive Medicine, University of Basel, Basel, Switzerland b Department of Social and Preventive Medicine, University of Bern, Bern, Switzerland c Swiss Federal Office of Public Health, Bern, Switzerland

Received April 22, Accepted October 12, 2003

From June 2001, health questionnaires were distributed to people who complained about symptoms of ill health which they ascribed to exposure to electromagnetic fields (EMF). The objective of the survey was to gain a better knowledge of the anxieties of complainants, to obtain hints of possible problems and of actions that

should be taken to solve the problems. The survey was not designed to establish a causal association between exposure to EMF and symptoms of ill health. Within one year, 429 questionnaires were returned of which 394 persons reported symptoms. The average age of the complainants was 51.0 years and 57 percent were female. The complainants were older, had a higher educational level and were more likely to be married compared to the general Swiss population. A mean of 2.7 different symptoms were reported. **Sleep disorders (58%), headaches (41%), nervousness or distress (19%), fatigue (18%), and concentration difficulties (16%) were most common complaints. Complainants related their symptoms most frequently to exposure to mobile phone base stations (74%), followed by mobile phones (36%), cordless phones (29%) and power lines (27%).** No distinct symptoms related to a specific field source could be identified. Eighty five percent of the people who consulted a public authority because of their symptoms were unsatisfied with the response, whereas consultation of self help groups or building ecologists usually fulfilled expectations. Two thirds of complainants had taken some action to reduce their symptoms. The most common measure was to avoid exposure if possible. Removing or disconnecting indoor sources was judged to be the most effective action.

Key words: Electromagnetic fields ± mobile phone base station ± electromagnetic hypersensitivity (EHS) ± complaints

Source—Bioinitiative Report 2012 Research Sumaries #1

<http://www.bioinitiative.org/research-summaries/>

Burch JB, Reif JS, Noonan CW, Ichinose T, Bachand AM, Koleber TL, Yost MG. Melatonin metabolite excretion among cellular telephone users. Int J Rad Biol 78: 1029-1036, 2002.

<https://www.ncbi.nlm.nih.gov/pubmed/12456290>

“Prolonged use of cellular telephones may lead to reduced melatonin production, and elevated 60-Hz MF exposures may potentiate the effect.”

Abstract: Purpose: The relationship between cellular telephone use and excretion of the melatonin metabolite 6-hydroxymelatonin sulfate (6-OHMS) was evaluated in two populations of male electric-utility workers (Study 1, n=149; Study 2, n=77). Materials and methods: Participants collected urine samples and recorded cellular telephone use over 3 consecutive workdays. Personal 60-Hz magnetic field (MF) and ambient light exposures were characterized on the same days using

EMDEX II meters. A repeated measures analysis was used to assess the effects of cellular telephone use, alone and combined with MF exposures, after adjustment for age, participation month and light exposure. Results: No change in 6-OHMS excretion was observed among those with daily cellular telephone use >25 min in Study 1 (5 worker days). Study 2 workers with >25 min cellular telephone use per day (13 worker days) had lower creatinine-adjusted mean nocturnal 6-OHMS concentrations ($p=0.05$) and overnight 6-OHMS excretion ($p=0.03$) compared with those without cellular telephone use. There was also a linear trend of decreasing mean nocturnal 6-OHMS/creatinine concentrations ($p=0.02$) and overnight 6-OHMS excretion ($p=0.08$) across categories of increasing cellular telephone use. A combined effect of cellular telephone use and occupational 60-Hz MF exposure in reducing 6-OHMS excretion was also observed in Study 2. Conclusions: Exposure-related reductions in 6-OHMS excretion were observed in Study 2, where daily cellular telephone use of >25 min was more prevalent. **Prolonged use of cellular telephones may lead to reduced melatonin production, and elevated 60-Hz MF exposures may potentiate the effect.**

Occupational Electromagnetic Field Exposures Associated with Sleep Quality: A Cross-Sectional Study

Liu H, Chen G, Pan Y, Chen Z, Jin W, Sun C, Chen C, Dong X, Chen K, Xu Z, Zhang S, Yu Y. (2014). PLoS ONE 9(10): e110825. doi:10.1371/journal.pone.0110825.

FULL STUDY: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4207748/>

“CONCLUSIONS: The findings showed that daily occupational EMF exposure was positively associated with poor sleep quality. It implies EMF exposure may damage human sleep quality rather than sleep duration.”

BACKGROUND: Exposure to electromagnetic field (EMF) emitted by mobile phone and other machineries concerns half the world's population and raises the problem of their impact on human health. The present study aims to explore the effects of electromagnetic field exposures on sleep quality and sleep duration among workers from electric power plant. **METHODS:** A cross-sectional study was conducted in an electric power plant of Zhejiang Province, China. A total of 854 participants were included in the final analysis. The detailed information of participants was obtained by trained investigators using a structured questionnaire, which including socio-demographic characteristics, lifestyle variables, sleep variables and electromagnetic exposures. Physical examination and venous blood

collection were also carried out for every study subject. **RESULTS:** After grouping daily occupational electromagnetic exposure into three categories, subjects with long daily exposure time had a significantly higher risk of poor sleep quality in comparison to those with short daily exposure time. The adjusted odds ratios were 1.68 (95% CI: 1.18, 2.39) and 1.57 (95% CI: 1.10, 2.24) across tertiles. Additionally, among the subjects with long term occupational exposure, the longer daily occupational time apparently increased the risk of poor sleep quality (OR (95% CI): 2.12 (1.23~3.66) in the second tertile; 1.83 (1.07~3.15) in the third tertile). There was no significant association of long term occupational exposure duration, monthly electric fee or years of mobile phone use with sleep quality or sleep duration. **CONCLUSIONS: The findings showed that daily occupational EMF exposure was positively associated with poor sleep quality. It implies EMF exposure may damage human sleep quality rather than sleep duration.**

Effect of occupational EMF exposure from radar at two different frequency bands on plasma melatonin and serotonin levels. Int J Radiat Biol. 2015 Jan 7:1-39. [Epub ahead of print].

Singh S, Mani KV, Kapoor N.

<https://www.ncbi.nlm.nih.gov/pubmed/25565559>

~~“the other group II exposed population registered statistically significant decline in melatonin concentration when compared with controls”~~

~~Objective: The purpose of the present study was to delineate the effect of chronic electromagnetic field (EMF) exposure from radar on plasma melatonin and serotonin levels in occupationally exposed military personnel. Subjects and~~

~~Methods: 166 male military personnel participated in the study out of which only 155 joined for blood draw. They were divided into three sets viz control group (n=68), exposure group I (n=40) exposed to 8-12GHz and exposure group II (n=58) working with radar at 12.5-18GHz frequency. All the three groups were further split into two groups according to their years of service (up to 10 years and > 10 years) in order to investigate the effect of years of exposure from radar.~~

~~Melatonin and serotonin levels were estimated by enzyme immunoassay in fasting blood samples collected during 0600-0700h. EMF measurements were recorded at different locations using Satimo EME Guard 'Personal Exposure Meter' and Narda 'Broad Band Field Meter'. Results: The group I exposed population registered a minor though not significant decrease in plasma melatonin concentration **the other group II exposed population registered statistically significant decline in melatonin concentration when compared with controls.** Highly significant~~

increase in plasma serotonin levels was found in exposure group II when compared to control whereas marginal non-significant rise was also registered in exposure group I in comparison to control. Exposure in terms of length of service up to 10 years did not produce any significant effect in the indoleamine levels in both the exposure groups when they were compared with their respective control groups. Whereas, length of service greater than 10 years was observed to decrease and increase respectively the melatonin and serotonin concentration significantly in exposure group II but not in exposure group I. However, correlation test did not yield any significant association between years of service and melatonin or serotonin levels respectively in both the exposure sets I and II. No significant association was observed between melatonin and serotonin levels as well.

Conclusion: The study shows the EMF ability to influence plasma melatonin and serotonin concentration in radar workers, significantly in 12.5-18GHz range with service period greater than 10 years.

Symptoms experienced by users of digital cellular phones: a pilot study in a French engineering school. Pathol Biol (Paris) 49(3):222-226, 2001. [Article in French]

Santini R, Seigne M, Bonhomme-Faivre L, Bouffet S, Defrasne E, Sage M.

<https://www.ncbi.nlm.nih.gov/pubmed/11367556>

A survey study, using questionnaire, was conducted in 161 students and workers in a French engineering school on symptoms experienced during use of digital cellular phones. A significant increase in concentration difficulty ($p < 0.05$) was reported by users of 1800 MHz (DCS) cellular phones compared to 900 MHz (GSM) phone users. **In users of cellular phones, women significantly ($p < 0.05$) complained more often of sleep disturbance than men. This sex difference for sleep complaint is not observed between women and men non-users of cellular phone. The use of both cellular phones and VDT significantly ($p < 0.05$) increased concentration difficulty.** Digital cellular phone users also significantly ($p < 0.05$) more often complained of discomfort, warmth, and picking on the ear during phone conversation in relation with calling duration per day and number of calls per day. The complaint warmth on the ear might be a signal to users for stopping the call.

The Therapeutic Effect Of A Pulsed Electromagnetic Field On The Reproductive Patterns Of Male Wistar Rats Exposed To A 2.45-Ghz Microwave Field.

Clinics (Sao Paulo). 66(7):1237-1245, 2011.

Kumar S, Kesari KK, Behari J.

FULL STUDY: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3148471/>

“RESULTS: The results showed significant increases in caspase and creatine kinase and significant decreases in testosterone and melatonin in the exposed groups”

INTRODUCTION: Environmental exposure to man-made electromagnetic fields has been steadily increasing with the growing demand for electronic items that are operational at various frequencies. Testicular function is particularly susceptible to radiation emitted by electromagnetic fields. **OBJECTIVES:** This study aimed to examine the therapeutic effects of a pulsed electromagnetic field (100 Hz) on the reproductive systems of male Wistar rats (70 days old). **METHODS:** The experiments were divided into five groups: microwave sham, microwave exposure (2.45 GHz), pulsed electromagnetic field sham, pulsed electromagnetic field (100 Hz) exposure, and microwave/pulsed electromagnetic field exposure. The animals were exposed for 2 hours/day for 60 days. After exposure, the animals were sacrificed, their sperm was used for creatine and caspase assays, and their serum was used for melatonin and testosterone assays. **RESULTS:** The results showed

significant increases in caspase and creatine kinase and significant decreases in testosterone and melatonin in the exposed groups. This finding emphasizes that reactive oxygen species (a potential inducer of cancer) are the primary cause of DNA damage. However, pulsed electromagnetic field exposure relieves the effect of microwave exposure by inducing Faraday currents. CONCLUSIONS: Electromagnetic fields are recognized as hazards that affect testicular function by generating reactive oxygen species and reduce the bioavailability of androgen to maturing spermatozoa. Thus, microwave exposure adversely affects male fertility, whereas pulsed electromagnetic field therapy is a non-invasive, simple technique that can be used as a scavenger agent to combat oxidative stress.

900-MHz microwave radiation promotes oxidation in rat brain.

Electromagn Biol Med. **30(4):219-234, 2011.**

Kesari KK, Kumar S, Behari J.

“Also, a significant decrease ($P < 0.05$) in the level of pineal melatonin”

<https://www.ncbi.nlm.nih.gov/pubmed/22047460>—Recently, there have been several reports referring to detrimental effects due to radio-frequency electromagnetic fields (RF-EMF) exposure. Special attention was given to investigate the effect of mobile phone exposure on the rat brain. Since the integrative mechanism of the entire body lies in the brain, it is suggestive to analyze its biochemical aspects. For this, 35-day-old Wistar rats were exposed to a mobile phone for 2 h per day for a duration of 45 days where specific absorption rate (SAR) was 0.9 W/Kg. Animals were divided in two groups: sham-exposed ($n = 6$) and exposed group ($n = 6$). Our observations indicate a significant decrease ($P < 0.05$) in the level of glutathione peroxidase, superoxide dismutase, and an increase in catalase activity. Moreover, protein kinase shows a significant decrease in exposed group ($P < 0.05$) of hippocampus and whole brain. **Also, a significant decrease ($P < 0.05$) in the level of pineal melatonin** and a significant increase ($P < 0.05$) in creatine kinase and caspase 3 **was observed in exposed group of whole brain as compared with sham-exposed.** Finally, a significant increase in the level of ROS (reactive oxygen species) ($P < 0.05$) was also recorded. The study concludes that a reduction or an increase in antioxidative enzyme activities, protein kinase C, melatonin, caspase 3, and creatine kinase are related to overproduction of reactive oxygen species (ROS) in animals under mobile phone radiation exposure. Our findings on these biomarkers are clear indications of possible health

implications.

Who's evidence to believe?

Complainant and Defendant present conflicting views.

The Defendant's position is that the 900 MHz radiation emanating from their AMI smart meter is safe and can't cause negative biological effects. The Complainant presented evidence to the contrary from hundreds of scientists around the world.

~~In order to give perspective to this seeming conflict of perceptions, Complainant presents this investigative journalism article from the **Nation Magazine** (March 29, 2018) which found that there has been a massive disinformation campaign by the wireless industry to hide the danger of cell phone radiation. That included, funding industry friendly research, hiding negative research results, "war gaming" research that shows harm, discrediting scientists whose views conflict with the industry's position and co-opting of regulatory agencies. One conclusion of the article is that "Billions of cell phone users have been subjected to a public health experiment without informed consent."~~

~~The full article can be accessed at this link below. Complainant reproduces a portion of it here for the court:~~

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~~<https://www.thenation.com/article/how-big-wireless-made-us-think-that-cell-phones-are-safe-a-special-investigation/>~~

~~**How Big Wireless Made Us Think That Cell Phones Are Safe: A Special Investigation**~~

~~**The disinformation campaign—and massive radiation increase—behind the 5G rollout.**~~

~~**By Mark Hertsgaard and Mark Dowie — The Nation**~~

~~*March 29, 2018*~~

~~Like their tobacco and fossil fuel brethren, wireless executives have chosen not to publicize what their own scientists have said about the risks of their products. On the contrary, the industry—in America, Europe, and Asia—has spent untold millions of dollars in the past 25 years proclaiming that science is on its side, that the critics are quacks, and that consumers have nothing to fear. This, even as the industry has worked behind the scenes—again like its Big Tobacco counterpart—to deliberately addict its customers. Just as cigarette companies added nicotine to~~

hook smokers, so have wireless companies designed cell phones to deliver a jolt of dopamine with each swipe of the screen.

This *Nation* investigation reveals that the wireless industry not only made the same moral choices that the tobacco and fossil fuel industries did; it also borrowed from the same public relations playbook those industries pioneered. The playbook's key insight is that an industry doesn't have to win the scientific argument about safety; it only has to keep the argument going. That amounts to a win for the industry, because the apparent lack of certainty helps to reassure customers, even as it fends off government regulations and lawsuits that might pinch profits.

Central to keeping the scientific argument going is making it appear that not all scientists agree. Again like the tobacco and fossil fuel industries, the wireless industry has "war-gamed" science, as a Motorola internal memo in 1994 phrased it. War-gaming science involves playing offense as well as defense: funding studies friendly to the industry while attacking studies that raise questions; placing industry-friendly experts on advisory bodies like the World Health Organization; and seeking to discredit scientists whose views depart from the industry's.

Funding friendly research has perhaps been the most important component of this strategy, because it conveys the impression that the scientific community truly is divided. Thus, when studies have linked wireless radiation to cancer or genetic

damage—as Carlo’s WTR did in 1999; as the WHO’s Interphone study did in 2010; and as the US National Toxicology Program did in 2016—industry spokespeople can point out, accurately, that other studies disagree. “[T]he overall balance of the evidence” gives no cause for alarm, asserted Jack Rowley, research and sustainability director for the Groupe Special Mobile Association (GSMA), Europe’s wireless trade association, speaking to reporters about the WHO’s findings.

A closer look reveals the industry’s sleight of hand. When Henry Lai, the professor whom Carlo tried to get fired, analyzed 326 safety-related studies completed between 1990 and 2005, he learned that 56 percent found a biological effect from cell-phone radiation and 44 percent did not; the scientific community apparently was split. But when Lai recategorized the studies according to their funding sources, a different picture emerged: 67 percent of the independently funded studies found a biological effect, while a mere 28 percent of the industry-funded studies did. Lai’s findings were replicated by a 2007 analysis in *Environmental Health Perspectives* that concluded industry-funded studies were two and a half times less likely than independent studies to find a health effect.

One key player has not been swayed by all this wireless-friendly research: the insurance industry. *The Nation* has not been able to find a single insurance

~~company willing to sell a product liability policy that covered cell phone radiation. “Why would we want to do that?” one executive chuckled before pointing to more than two dozen lawsuits outstanding against wireless companies, demanding a total of \$1.9 billion in damages. Some judges have affirmed such lawsuits, including a judge in Italy who refused to allow industry-funded research as evidence.~~

~~Even so, the industry’s neutralizing of the safety issue has opened the door to the biggest, most hazardous prize of all: the proposed revolutionary transformation of society dubbed the “Internet of Things.” Lauded as a gigantic engine of economic growth, the Internet of Things will not only connect people through their smartphones and computers but will connect those devices to a customer’s vehicles and home appliances, even their baby’s diapers—all at speeds faster than can currently be achieved.~~

~~Billions of cell phone users have been subjected to a public health experiment without informed consent.~~

~~There is a catch, though: The Internet of Things will require augmenting today’s 4G technology with 5G, thus “massively increasing” the general population’s exposure to radiation, according to a petition signed by 236 scientists worldwide who have published more than 2,000 peer-reviewed studies and represent “a significant portion of the credentialed scientists in the radiation research field,”~~

according to Joel Moskowitz, the director of the Center for Family and Community Health at the University of California, Berkeley, who helped circulate the petition. Nevertheless, like cell phones, 5G technology is on the verge of being introduced without pre-market safety testing.

Lack of definitive proof that a technology is harmful does not mean the technology is safe, yet the wireless industry has succeeded in selling this logical fallacy to the world. In truth, the safety of wireless technology has been an unsettled question since the industry's earliest days. The upshot is that, over the past 30 years, billions of people around the world have been subjected to a massive public health experiment: Use a cell phone today, find out later if it causes cancer or genetic damage. Meanwhile, the wireless industry has obstructed a full and fair understanding of the current science, aided by government agencies that have prioritized commercial interests over human health and news organizations that have failed to inform the public about what the scientific community really thinks. In other words, this public health experiment has been conducted without the informed consent of its subjects, even as the industry keeps its thumb on the scale.

“The absence of absolute proof does not mean the absence of risk,” Annie Sasco, the former director of epidemiology for cancer prevention at France's National Institute of Health and Medical Research, told the attendees of the 2012 Childhood

Cancer conference. “The younger one starts using cell phones, the higher the risk,” Saseo continued, urging a public education effort to inform parents, politicians, and the press about children’s exceptional susceptibility.

For adults and children alike, the process by which wireless radiation may cause cancer remains uncertain, but it is thought to be indirect. Wireless radiation has been shown to damage the blood-brain barrier, a vital defense mechanism that shields the brain from carcinogenic chemicals elsewhere in the body (resulting, for example, from secondhand cigarette smoke). Wireless radiation has also been shown to interfere with DNA replication, a proven progenitor of cancer. In each of these cases, the risks are higher for children: Their skulls, being smaller, absorb more radiation than adults’ skulls do, while children’s longer life span increases their cumulative exposure.

The wireless industry has sought to downplay concerns about cell phones’ safety, and the Federal Communications Commission has followed its example. In 1996, the FCC established cell phone safety levels based on “specific absorption rate,” or SAR. Phones were required to have a SAR of 1.6 watts or less per kilogram of body weight. In 2013, the American Academy of Pediatrics advised the FCC that its guidelines “do not account for the unique vulnerability and use patterns specific

~~to pregnant women and children.” Nevertheless, the FCC has declined to update its standards.~~

~~The FCC has granted the industry’s wishes so often that it qualifies as a “captured agency,” argued journalist Norm Alster in a report that Harvard University’s Edmond J. Safra Center for Ethics published in 2015. The FCC allows cell phone manufacturers to self-report SAR levels, and does not independently test industry claims or require manufacturers to display the SAR level on a phone’s packaging. “Industry controls the FCC through a soup-to-nuts stranglehold that extends from its well-placed campaign spending in Congress through its control of the FCC’s congressional oversight committees to its persistent agency lobbying,” Alster wrote. He also quoted the CTIA website praising the FCC for “its light regulatory touch.”~~

Radiation Exposure from Smart Meters vs Cell Phones

Complainant in his exhibit 15 provides a **statement from radiation expert Daniel Hirsch, that smart meters by virtue of whole body radiation exposure and**

being on 24/7, expose people to between 50 – 160 times the radiation of a cell phone.

http://con3emfblog.net/wp-content/uploads/2011/02/110212_GBG-on-Smart-Meters.pdf

Full Document below

Comments on the Draft Report
by the California Council on Science and Technology
“Health Impacts of Radio Frequency from Smart Meters”

by Daniel Hirsch¹
31 January 2011

Abstract

The draft report by the California Council on Science and Technology (CCST) does not appear to answer the questions asked of it by the requesting elected officials. Furthermore, rather than being an independent, science-based study, the CCST largely cuts and pastes estimates from a brochure by the Electric Power Research Institute, an industry group, issued some weeks earlier. The EPRI estimates appear incorrect in a number of regards. When two of the most central errors are corrected – the failure to take into account duty cycles of cell phones and microwave ovens and the failure to utilize the same units (they should compare everything in terms of average whole body exposure) **the cumulative whole body exposure from a Smart Meter at 3 feet appears to be approximately two orders of magnitude higher than that of a cell phone, rather than two orders of magnitude lower.**

It is strongly recommended that CCST revise its Draft Report and conduct actual measurements of cell phone, microwave oven, and SmartMeter RF cumulative whole body power densities. If measurements aren't made, then rigorous calculations correcting for cell phone and microwave oven duty cycles and whole body exposures should be made.

A summary figure below shows how rough estimates of the effect of those corrections suggest SmartMeters may produce cumulative whole body exposures far higher than that of cell phones or microwave ovens.

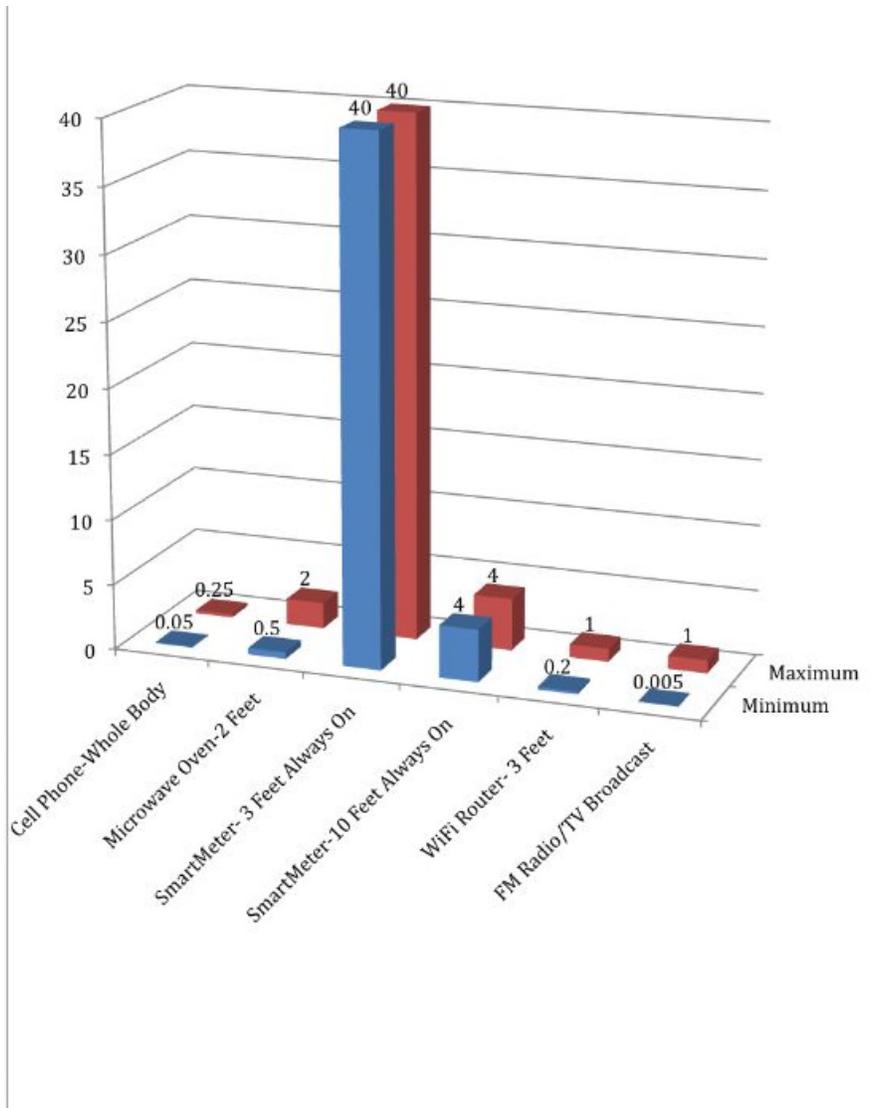


Figure A. Comparison of Radio-Frequency Levels to the Whole Body from Various Sources in $\mu\text{W}/\text{cm}^2$ over time [corrected for assumed duty cycle and whole body exposure extrapolated from assumed cell phone dose at ear].

On 30 July 2010 Assemblymember Jared Huffman requested that CCST undertake an “independent, science-based study” of two questions: “whether FCC standards for SmartMeters are sufficiently protective of public health taking into account current exposure levels to radiofrequency and electromagnetic fields, and further to assess whether additional technology specific standards are needed for SmartMeters and other devices that are commonly found in and around homes, to ensure adequate protection from adverse health effects.”

Unfortunately, the Council draft report answers neither question.

In September, Assemblymember William Monning and Mill Valley Mayor Stephanie Moulton-Peters joined in the request, asking in particular that CCST review the central issue associated with the current FCC standards, which are decades old and based solely on protecting against prompt thermal effects (heating of tissue)—that they fail to take into consideration long-term and cumulative exposures to these devices and potential non-thermal health impacts (e.g., latent cancers).

Again, the Council’s draft report provides little if any useful information or analysis of this matter. There is no mention or analysis of the specific studies that have suggested, for example, a cancer effect from RF exposure such as the large, international study funded by the cell phone industry, the Interphone study, that found a significant increase in brain cancers in people who used cell phones half an hour a day for ten years. Given the long latency period generally for solid cancers, such a finding gives pause as to what might be seen over the long term. Some other studies have suggested an increased risk of brain cancer on the side of the head where the cellphone is normally used. Other studies, however, have not found an effect. Given the nature of the request from the elected officials for a review of this critical scientific issue—whether there is the potential for non-thermal health effects from cumulative, long-term exposure to RF radiation—one would have hoped that there would have been a more detailed analysis of this question in the report.

The report is candid, however, that at present the issue is unresolved. But it goes on to then say there is no basis for changing the FCC standards which are based only on prompt, thermal effects. One could equally well say there is no basis for maintaining the FCC standards, given the uncertainties about latent, non-thermal effects.

What the CCST draft report does focus on, however, is the relative exposure from SmartMeters compared to other RF-emitting devices in common use. Here, again, the draft report disappoints. The elected officials cited claims made by the electric utility industry regarding safety of SmartMeters and purportedly relative low exposures compared to other common devices and requested “an independent, science-based study.”

However, the CCST draft report does not appear to include much if any independent work on the subject but rather merely pastes in a table taken from an 8-page pamphlet released a few weeks earlier by the Electric Power Research Institute (EPRI), an advocacy group for the

electric power industry.² This EPRI table and the graph made from it constitute the core of the CCST report, and is reproduced here as Figure 1.

The EPRI pamphlet is not a peer-reviewed scientific study. It is a brief item for an advocacy group that is supported by industry. If the elected officials wanted the industry's views, it would have asked for them. Instead, it wished an independent, science-based study by an entity without the kinds of conflicts of interest EPRI has on this matter. But the CCST draft report is basically simply a cut-and-paste job from the EPRI brochure.

Note also that the estimate for exposure from a single SmartMeter contained in the EPRI item and repeated in the CCST draft is not a measured value but estimated—how is not made clear. EPRI's measurements were for a bank of ten SmartMeters; it didn't measure one alone but somehow estimated for it, despite the difference in how exposure falls off from one versus ten. The latter is inverse of the distance, the former inverse square of the distance. One presumes the electeds wanted actual measured values from an independent source, not a calculated value from the electric industry, without even an explanation of how it is was calculated and without independent verification.

CCST does correct one error made in the EPRI brochure whereby it reduced the presumed power density estimates for the SmartMeter by duty cycles of 1 and 5%. CCST rightly indicated that future duty cycles could be much higher as "new applications and functionality are added to the meter's communication module in the future." For this reason, it assumed a 100% duty cycle in its calculations.

HOWEVER, CCST did not correct numerous other apparent errors from the EPRI brochure when it adopted EPRI's values. For example, for cell phone exposures, CCST did not correct for the presumed duty cycle of the cell phone (which CCST indicates on average is 1%). Nor did it convert the EPRI cell phone power density estimate into comparable units. EPRI (and thus CCST) compared a *whole body average* exposure to SmartMeter radiation to *peak exposure to the ear* for the cell phone. One needs to compare apples and apples, or whole body exposures to whole body exposures. Comparing the peak dose to the ear from a cell phone, when the rest of the body gets vastly less radiation, with a whole body exposure where all organs get roughly the same dose from a SmartMeter, doesn't seem appropriate. If there is a cancer effect, it is likely associated with the total RF energy the body receives.

Similar apparent errors were made in the comparison to microwave ovens. Again, the duty cycle of the microwave oven is ignored. It is used perhaps fifteen minutes a day, and it is unlikely people are 2 feet away from the device for the full time it is on. Its "down time" must be included if one is looking, as requested by the elected officials, at potential cumulative, long-term exposures.

² The EPRI brochure was apparently released on November 17, providing little if any time for serious review of it by CCST prior to the release a few weeks later (with the holidays intervening) of the CCST report on which it was based.

[Additionally, the values given for microwave oven exposures by EPRI and adopted without changed in the CCST draft report seem questionable. Three references are given in the EPRI report, although for which claim each applies is not made clear. The first reference, the ICNIRP report, does not in fact give measured values for microwave ovens, but instead reports what the legal limit for leakage is, generally reported to be orders of magnitude above what typical exposures from microwave ovens really are. The second reference is to a 1978 paper by PG&E's consultant, RA Tell. That paper CCST has not made available for review, but it is over three decades old, and thus of little relevance to today's microwave ovens. The third reference is merely to a personal communication with Tell, without any information as to the content of that communication. When one checks the values reported by EPRI and uncritically adopted by CCST, it appears that the first value, 5 mW/cm² at 2 inches from the device, is in fact not a measured value of typical exposures but the vastly higher legal limit for leakage. The literature in fact indicates that 50% of microwave ovens produce less than 0.062 mW/cm² at 5 cm, or two orders of magnitude below the value reported by EPRI and reproduced by CCST without question. See, e.g., R. Mathes, "Radiation Emission from Microwave Ovens," *Journal of Radiation Protection*, Vol. 12, No. 3, September 1992. One presumes the leakage rate has been reduced even further since then.]

One recognizes that if one is comparing to FCC existing standards based solely on acute, thermal effects that duty cycle might be treated differently. But if there is a cancer effect, which is what the electeds asked CCST to study, a likely key aspect of the dose-response relationship is the cumulative whole body dose. For ionizing radiation, about which I have spent much of my career, the determining factor is largely how much radiation energy the body has absorbed. [There are of course other factors, such as the relative biological effectiveness (RBE) of different types of ionizing radiation and varying sensitivity of different organs.] So, if the question were how does SmartMeter and cell phone RF radiation compare to FCC limits, duty cycle may be treated in a different fashion. But since the question is what if FCC limits, based solely on thermal effects, may be inadequate to protect against cancer and other non-thermal effects, then the duty cycle—which determines the cumulative total exposure received—and whole body exposure must be factored in. My fundamental recommendation is that the draft report should be revised to correct for these two factors.

I have taken the liberty, with the help of two student assistants, to demonstrate the potential impact of some of these corrections.

Figure 1 is simply the CCST Figure 1, which in turn was largely taken from the estimates in the EPRI pamphlet. Units were simply converted by CCST from mW/cm² to μ W/cm² and it corrected the duty cycle for the SmartMeter, otherwise the data are unchanged from EPRI's estimates. One will note that the estimated exposure from the cell phone is just to the ear, in direct contact with the cell phone, whereas the other comparisons, including the SmartMeter, are for whole body exposures, and that the duty cycle of the cell phone and microwave oven were not corrected. In other words, the chart compares a SmartMeter that is always on with a cell phone or microwave oven when they are being used, even though 99% of the time they are not in use. This overestimates the cumulative exposure by a factor of 100 for the cell phone and microwave oven, and dramatically skews the comparison.

Figure 2 fixes the error regarding duty cycle for the cell phone and microwave oven, markedly altering the comparison. The minimum cumulative exposure over time from the SmartMeter at 3 feet is 80 times the minimum cumulative exposure from the microwave oven and four times the minimum cumulative exposure from the cell phone, for example. This does not involve any correction of the while-on exposure values for either the cell phone or microwave oven, only the duty cycle factor.

Figure 3 provides a very rough approximation of the correction of the cell phone at the ear estimate to a whole body estimate so it is comparable to the whole body estimate for the SmartMeter. *It should be stressed that neither this estimate nor that in Figure 4 using a different approach is intended to be a definitive figure, but is intended to be exemplary of the kind of change to the comparison a detailed analysis may produce. It is my recommendation that CCST carefully measure, or at minimum thoroughly calculate, the average power density over the whole body from a cell phone held at the ear. We here have made two very rough estimates just to make the point what a far more detailed analysis may show.*

The value used for the peak cell phone power density for a cell phone held to the ear in the CCST draft report is taken directly from the EPRI pamphlet, without apparent independent review or correction. According to p. 6 of the EPRI pamphlet, the value it gives apparently is not a measured value but an estimate. How the estimate was arrived at is not detailed in the brochure. All that is said is in footnote 1, “Based on a 3-inch 250mW antenna emitting in a cylindrical wavefront.” A quick calculation to try to reproduce what EPRI must have done indicates that if it merely assumed that all of the energy from a 250mW cell phone was transmitted by holding directly against the ear into a circular area with a 3 inch diameter, the power density in that small circular area around the ear would be 5 mW/cm². That is precisely the upper value given by EPRI in its table. We don’t know if that is what EPRI did, since it doesn’t tell us what it did and CCST does not appear to have tried to confirm the asserted value. But in any case, 5 mW/cm² from a 250mW cell phone would indeed appear to require that that power be deposited solely in that very small circular area.

Averaging over the full potentially exposed surface area of the body (presuming only half the body surface could be exposed to the cell phone from any one angle), the whole body exposure would be approximately on average 0.25 mW/cm² given the maximum value to the ear of 5 mW/cm² put forward by EPRI and the CCST draft report and correcting as well for the duty cycle. **The SmartMeter thus would produce 160 times more cumulative whole body exposure than the cell phone assuming this estimate for whole body exposure.** This is shown in Figure 3.³

³ In these graphs we have used the values for a microwave oven at 2 feet put forward by EPRI and repeated by CCST even though, as discussed above, they appear questionably high. Note that measured values indicate typical measured microwave oven RF fields 5 cm from the oven are in the range of 0.062 mW/cm², whereas the EPRI estimates used by CCST are for comparable values 2 feet away, which, if the exposure were drop by inverse square of the distance, should be very much lower. It is unclear whether EPRI is actually referring to measured values or to the legal limits, the latter being irrelevant in this context.

Since the EPRI estimate for cell phone peak power density at the ear is unexplained as to its derivation, we have also made a very rough estimate of whole body exposure from a cell phone from an independent line of calculation. Taking the values EPRI (and thereby CCST) put forward for exposure at three feet from a 250 mW SmartMeter, and noting that EPRI assumed the cell phone would also be 250mW, one can make a rough estimate of power density for the whole body from a cell phone held at the head. The exposure at one's waist would be approximately three feet from the source, just as in the assumed case of the SmartMeter. Presuming that the dose falls off as the inverse square of the distance, a very rough estimate of power density averaged over half the surface of the whole body, and taking into account duty cycle, yields a cumulative cell phone whole body power density of roughly $0.75 \mu\text{W}/\text{cm}^2$. **Using this way of estimating suggests the SmartMeter would produce 50 times the cumulative whole body exposure as a cell phone.** The results of this comparison are found in Figure 4.

We are here using the duty cycles proposed by CCST itself in its draft report. We recognize other duty cycles can be considered. Perhaps one should presume maximum duty cycle in the future for SmartMeters, when all additional features are incorporated, might be only 50%, for example. But other factors also need to be considered, including exposures from banks of SmartMeters attached to an apartment building, and the exposure from all the devices within a home that are planned to be constantly communicating by RF with the SmartMeter.⁴

It is strongly recommended that CCST revise the report and perform actual measurements. At minimum, revised calculations that correct for duty cycle and cumulative whole body exposure should be conducted.

⁴ It is noted that EPRI claims a diminished dose in back of a bank of SmartMeters, but it is unclear that that claim can be relied upon. The particulars of the specific test done by EPRI, in connection with the manufacturer of the devices (who has an obvious interest in findings suggesting safety), are not spelled out. Furthermore, it is unclear how the SmartMeter can communicate with devices inside the home—the key purpose—if the back of the device blocks most of the signal from getting through.

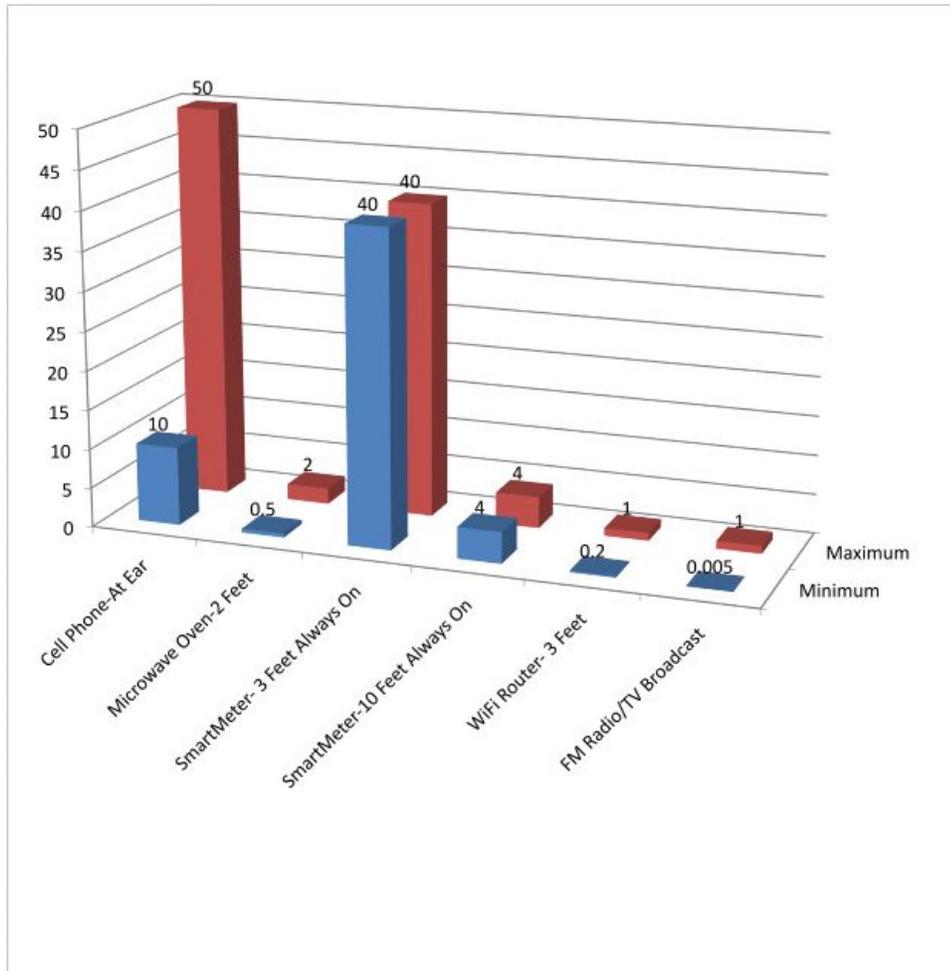


Figure 2. Comparison of Radio-Frequency Levels from Various Sources in $\mu\text{W}/\text{cm}^2$ over time [corrected only for assumed duty cycle].

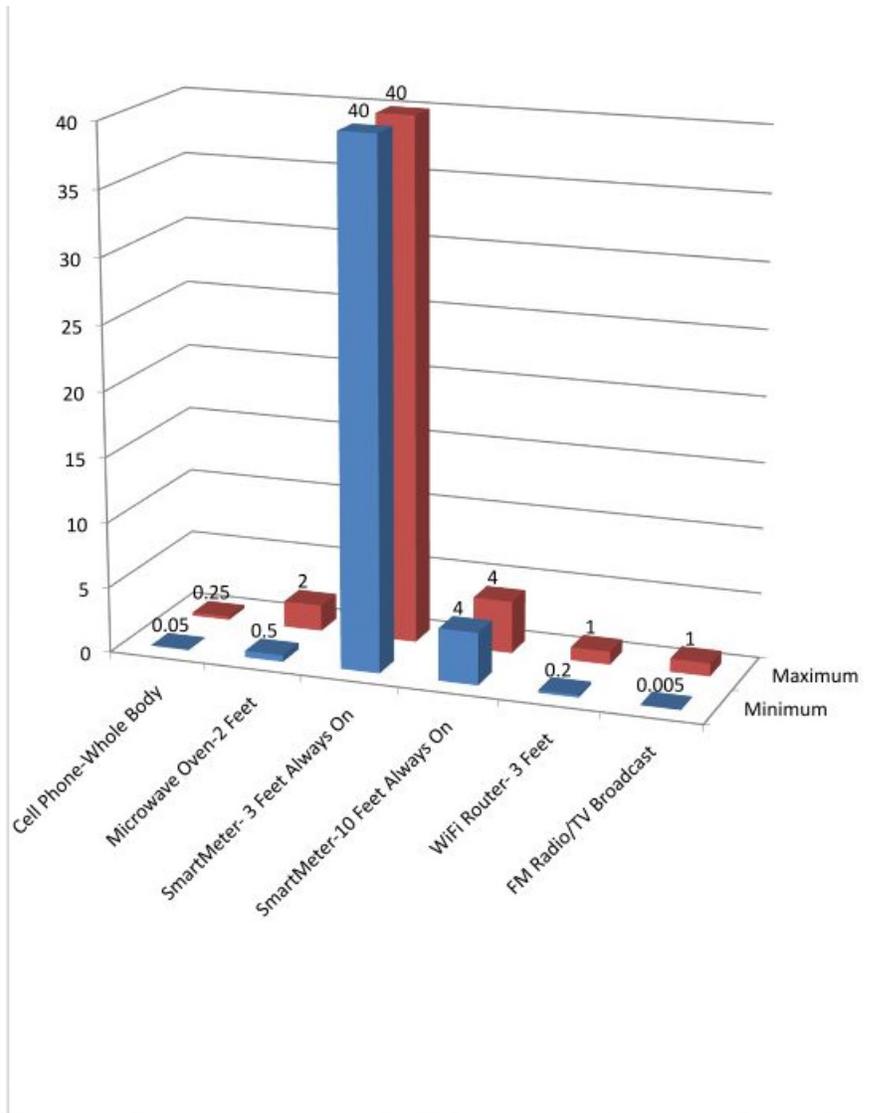


Figure 3. Comparison of Radio-Frequency Levels to the Whole Body from Various Sources in $\mu\text{W}/\text{cm}^2$ over time [corrected for assumed duty cycle and whole body exposure extrapolated from assumed cell phone dose at ear].

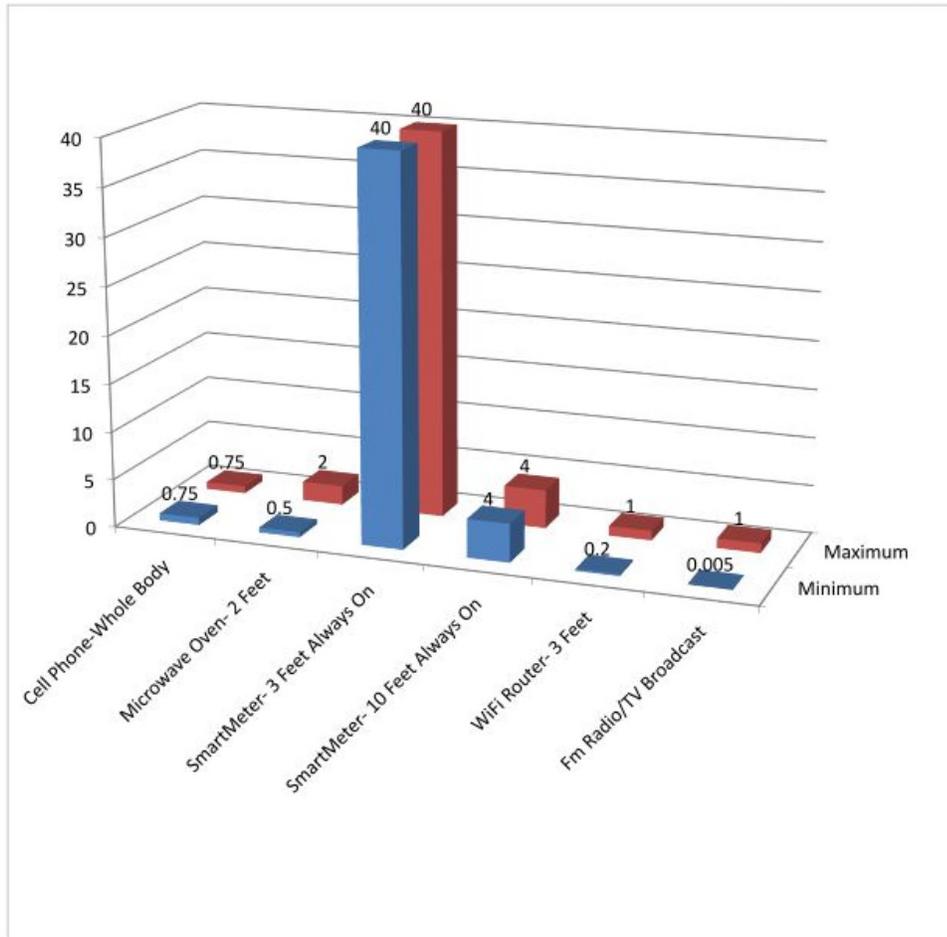


Figure 4. Comparison of Radio-Frequency Levels to the Whole Body from Various Sources in $\mu\text{W}/\text{cm}^2$ over time [corrected for assumed duty cycle and whole body exposure extrapolated from EPRI/CCST SmartMeter estimated levels at 3 feet].

~~Among the most recent studies are the U.S. National Toxicology (NTP) 10-year, 25 million dollar study (Complainant's exhibit 11) which found that rats exposed to cell phone radiation (which is similar to AMI meter radiation) developed Gliomas (brain cancer) and Schwannomas (cancer of the heart). A subsequent independent review of the NTP study confirmed the results and recommended even stronger warnings.~~

~~NTP – Independent Review~~

~~<https://ntp.niehs.nih.gov/update/2018/4/cell-phone/index.html>~~

~~NTP study~~

~~<https://www.nih.gov/news-events/news-releases/high-exposure-radiofrequency-radiation-linked-tumor-activity-male-rats>~~

Following on the heels of the NTP study was a large Italian study from the **Ramazzini Institute**, which independently found Schwannomas tumors in rats exposed to cell phone radiation, further confirming the results of the NTP study.

~~(Complainant's response to Christopher Davis's Direct Testimony – pages 9-10).~~

~~This is the actual study in full.~~

Ramazzine Institute Study

~~[file:///C:/Users/Alanh/Documents/Belpoggi Heart and Brain Tumors Base Station 2018.pdf](file:///C:/Users/Alanh/Documents/Belpoggi%20Heart%20and%20Brain%20Tumors%20Base%20Station%202018.pdf)~~

~~<https://www.sciencedirect.com/science/article/pii/S0013935118300367>~~

Also,

Dr. Anthony B. Miller declares that, based on the evidence, cell phone radiation is a carcinogen. (Complainant's response to Christopher Davis's Direct testimony – pages 10-13 and Dr. Miller's letter below).

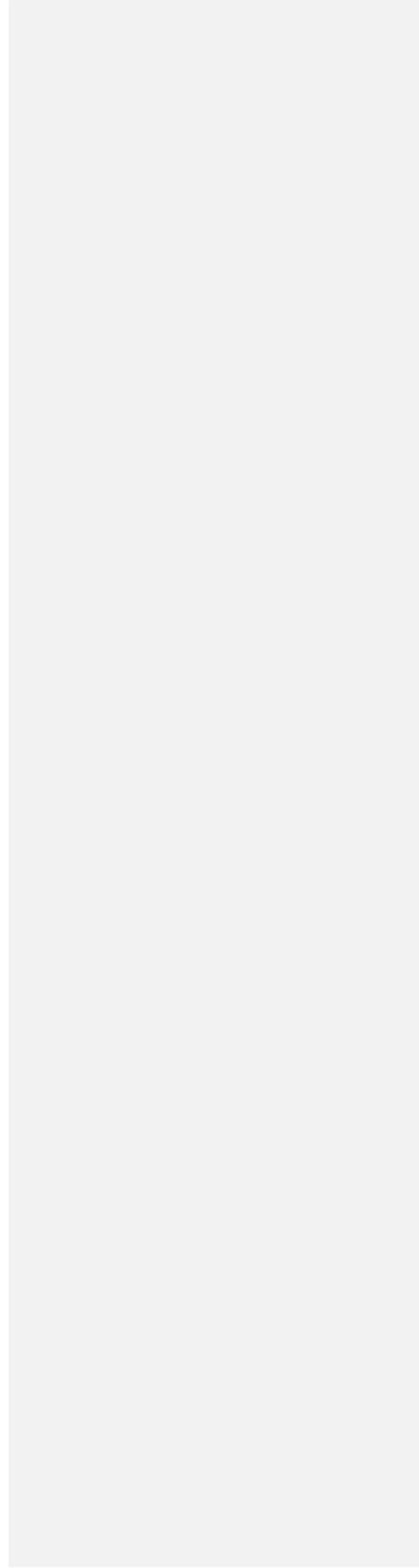
~~<https://pha.health.maryland.gov/OEHFP/EH/Shared%20Documents/CEHPAC/CEHPAC%20Dec%202013%20Comments%20Part%204.pdf>~~

~~<https://ehtrust.org/cancer-expert-declares-cell-phone-wireless-radiation-carcinogenic-humans/>~~

Anthony B. Miller, cancer expert, advisor to the WHO and epidemiologist for the IARC discusses the adverse effects of RF fields.

BIO: Dr. Anthony B. Miller is a physician epidemiologist who specializes in cancer etiology, prevention, and screening. Miller is Professor Emeritus at the Dalla Lana School of Public Health of the University of Toronto and Senior Medical Advisor to the Environmental Health Trust. He has been a longtime advisor to the World Health Organization (WHO) and was Senior Epidemiologist for the International Agency for Research on Cancer (IARC). He served as Director of the Epidemiology Unit of the National Cancer Institute of Canada, Chair of the Department of Preventive Medicine and Biostatistics at the University of Toronto, Head of the Division of Cancer Epidemiology at the German Cancer Research Centre, and Consultant to the Division of Cancer Prevention of the U.S. National Cancer Institute. He has performed research about electromagnetic fields and cancer and has served on many committees assessing carcinogenicity of various exposures. Miller was visiting Senior Scientist in the IARC Monographs programme as a reviewer to the scientific literature supporting designation of Radiofrequency Electromagnetic Fields (RF-EMF) as a Group 2B possible

carcinogen in 2011.



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August 4, 2016

Petaluma City Schools
District Office
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Petaluma, California
94952

Re: Adverse Effects of Radiofrequency fields

I am writing to express my concern over the increasing exposure of children in schools to Radiofrequency Fields (e.g. from wi-fi, as required for cell phones and iPads, and emitted by cell towers) and the lack of concern expressed by many councils, governments and School Boards on this issue. In particular, justification for the "safety" of radiofrequency fields is placed upon the use of outdated safety standards, based upon tissue heating, whereas it has now been well demonstrated that adverse biological effects occur at far lower levels of radiofrequency fields that do not induce tissue heating, including a recent animal study performed by the National Toxicology Program in the United States which found an increased incidence of brain cancers and other cancers in rats exposed to prolonged Radiofrequency fields.

I am a physician and epidemiologist specializing in cancer etiology, prevention, and screening, expert in epidemiology, and particularly causes of human cancer. I have performed research on ionizing radiation and cancer, electromagnetic fields and cancer, and have served on many committees assessing the carcinogenicity of various exposures, including working groups of the International Agency for Research on Cancer (IARC), widely regarded as providing unbiased assessment on the carcinogenicity of chemicals and other exposure to humans.

In 2011, an IARC working group designated radiofrequency fields as a class 2B carcinogen, a possible human carcinogen. Since that review a number of additional studies have been reported. One of the most important was a large case-control study in France, which found a doubling of risk of glioma, the most malignant form of brain cancer, after two years of exposure to cell phones. After five years exposure the risk was five-fold. They also found that in those who lived in urban environments the risk was even higher. In my view, and that of many colleagues who have written papers on this issue, these studies provide evidence that radiofrequency fields are not just a possible human carcinogen but a probable human carcinogen, i.e. IARC category 2A. It would be impossible to ignore such an assessment in regulatory approaches.

It is important to recognize that there are no safe levels of exposure to human carcinogens. Risk increases with increasing intensity of exposure, and for many carcinogens, even more with increasing duration of exposure. The only way to avoid the carcinogenic risk is to avoid exposure altogether. This is why we ban known carcinogens from the environment and why much effort is taken to get people, particularly young people, not to smoke. We now recognize that exposure to carcinogens in childhood can increase the risk of cancer in adulthood many years later. Further, people vary in their genetic makeup, and certain genes can make some people more susceptible than others to the effect of carcinogens. It is the young and those who are susceptible we should protect.

As an epidemiologist who has done a great deal of work on breast cancer, I have been concerned by a series of case reports from California and elsewhere of women who developed unusual breast cancers in the exact position where they kept cell phones in their bras. These are unusual cancers. They are multifocal, mirroring where the cell phone was kept. Thus in these relatively young women the radiofrequency radiation from very close contact with a cell phone has caused breast cancer.

Not only brain and breast cancers but parotid gland tumors, tumors of the salivary gland, have been associated with prolonged exposure to cell phones.

Given the long natural history of cancer and the fact that human populations have not been exposed for a sufficient length of time to reveal the full adverse effects of radiofrequency fields, it is extremely important to adopt a precautionary approach to the exposure of humans to such fields. An individual, if appropriately informed, can reduce her or his exposure to radiofrequency fields from devices that use wi-fi, but in the case of cell towers, smart meters and wi-fi in schools, the exposure they receive is outside their control. Then, with the people who manufacture these devices and those who promote wi-fi failing to issue adequate health warnings, we are reaching a situation where schools, work places and homes are being saturated with radiofrequency fields.

Thus to avoid a potential epidemic of cancer caused by radiofrequency fields from wi-fi and other devices, we should introduce means to reduce exposure as much as reasonably achievable, use hard wire connections to the internet and strengthen the codes that are meant to protect the public.

Yours sincerely



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Switched Mode Power Supply(SMPS) and Transients from AMI Meter

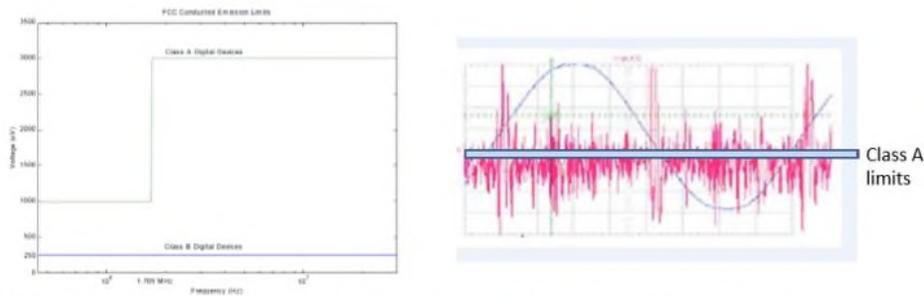
The Complainant's witness, William Bathgate testified that in addition to the microwave radiation emitted by Defendant's AMI meter, the meter also created **high frequency voltage transients due to its "switched mode power supply" (SMPS)** and that these voltage transients were superimposed on the house wiring, creating electromagnetic fields that extended into the rooms of any home with an AMI meter. Mr. Bathgate provided exhibits showing these voltage transients (I believe these exhibits were added to my original exhibit list as numbers 25 and 26).

The Complainant also introduced this concept in his exhibit #20 with abstracts and links to articles. In Mr. Bathgates' exhibits (24, 25 below), one can see the irregular pattern of the transient frequencies superimposed on the normal *sine wave* curve that has a smooth periodic, continuous oscillation. Thus the Complainant, who asserts he is electromagnetically hypersensitive (EHS), would be simultaneously exposed to both the AMI meter's direct microwave radiation and the electromagnetic field created by the transient currents it produces.

Mr. Bathgate states in the illustration below that the AMI meter is not compliant with FCC rules for “conducted Emissions Class A or Class B.

SMPS with Common Mode Filter – Principles You Need to Understand

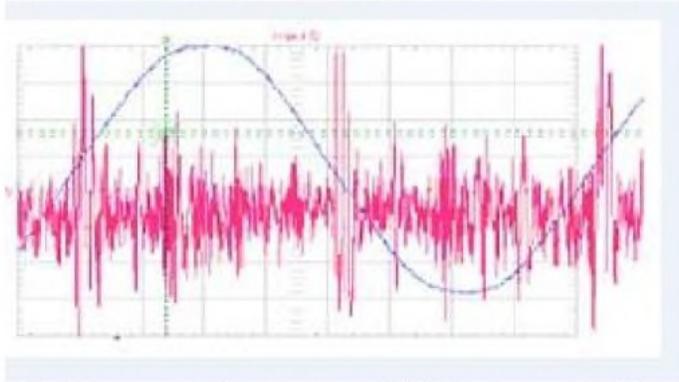
The Standard Single Phase 60 Cycle/Second Waveform with EMI/RFI introduced by the SMPS



The image in red is for both AMI meters (with the radios on or off) and the various forms of “Electronic Meters.” They are not compliant to FCC rules for “conducted” Emissions Class A or Class B. Shown here are the limits for CONDUCTED emissions not Radio Emissions, which is a different specification, which are being fed back into the home wiring at the load panel. This is placing stress on all electronics and electric motors in the home, causing early appliance motor failures, appliance electronic control failures and radio interference, in addition to health effects such as insomnia, tinnitus, headaches, high blood sugar levels and nervous disorders such as neuropathy and heart arrhythmia. In order to become compliant the meter manufacturers would have to scrap the current SMPS design, and include one that connects to an earth ground path to sink the oscillations to the home ground rod.

SMPS with Common Mode Filter – Principles You Need to Understand

The Standard Single Phase 60 Cycle/Second Waveform with EMI/RFI introduced by the SMPS



This waveform displayed is the same as an oscilloscope trace would look like, you cannot see this on a common voltmeter. Now we have introduced the effects of EMI/RFI via the SMPS to the same wire carrying the house current. This effect can be less depending on the environment, especially how good the house earth ground is magnetically coupling the house voltage currents. There are many variables that affect this waveform. The image in red should never be there, I have found this pattern consistent with every AMI meter, including the AMI meter with the radios off and the various digital meter alternatives. It is not compliant to FCC rules for “conducted” Emissions Class A or Class B.

7/16/2017

20

FIRE HAZARD From Smart Meter

In his original complaint, Complainant also averred that Defendant’s AMI meter was a fire hazard, as it was not grounded, had no fuse or circuit breaker.

Complainant’s witness, William Bathgate explained how the Defendant’s AMI meter could burst into flame from a power surge (Transcript: p. 76-11-25, p. 77- 1-15, p. 78- 7-17, p 79, 5-9, 18-21) He said that once that fire begins, “there’s no

shutting it out until the wires going from the transformer to the meter housing melt and disconnect, which can take some time.” (Transcript p77.1-15)

Mr. Bathgate also explained that a varistor served as a surge protector in the AMI meter, but that there is a limit to the surge that it can negate (only up to 300v AC), and even under normal usage, there is a limited number of cycles it can perform before it fails. Further, he testified that when the varistor fails, it will not be apparent to the occupant of the house. (p. 70,9-25, p.71,1-11, p.75, 9-16). Mr. Bathgate said he personally observed an AMI meter having exploded off the side of the house (Transcript p.78 -1-3, p.79-18-21). Bathgate also said that Analog meters can withstand much higher surges without exploding because there is a ground connection on the old meters that would allow a surge to short, to ground. Transcript p.78, 7-17)

Complainant also provided links in his original complaint and in his exhibits (Exhib #21) to reports of tens of thousands of similar meters being removed in Canada and Oregon due to fire safety concerns. **In 2014 Saskatchewan removed 105,000 smart meters after fires occurred from a number of smart meters.**

<http://www.cbc.ca/news/canada/saskatchewan/saskpower-to-remove-105-000-smart-meters-following-fires-1.2723046>

Defendant's witness acknowledged design deficit in AMI meter

Defendant witness Scott Larsen responded to a question from the judge by stating: "As far as what's concerned there, the meter itself is not designed as a protection device. So our surge protection is not the first and foremost when we look at designing a meter." (Transcript - p.244, 3-19)

Defendant witness Scott Larsen was asked if the new AMI meters can shut off service if a heat alarm is triggered. He replied: "There are technologies that can be employed to do that. We do not employ them, no. So there are switches within the meter that can open in this case, but we do not employ them." Larsen also stated that PPL does not remotely shut off service due to a temperature alarm. (Transcript p. 248, 9-20)

Defendant's witness acknowledged poor response time to alarms

At the hearing the judge asked Defendant witness Scott Larsen if a temperature alarm went off, would PPL send a technician out to look at the meter, and under what kind of time frame. Larsen responded that the alarms were set within a two

hour basis. (Transcript p. 247, 22-25 and 248, 1-7). In other words help would not likely arrive in time to prevent a fire.

Legal Issues in the Case

PA 129 was intended to be voluntary for consumers

The PA PUC website hosts a document , “Smart Meter Q&A” which states on page 2, that “state law does not allow a customer to opt out...” Counsel for the Defendant Renner echoed that during the hearing (Transcript p.185, 2,3,4).

Act 129 which created the smart meter program, created it as an OPT- IN program, stressing that the customer will “request” a smart meter. **It is poor logic to argue that Act 129 has no Opt Out rule, for it doesn’t need one, since it was written as a voluntary or OPT IN bill!**

The Defendant presents their AMI meter smart meter and declares it is mandatory. However **both federal and state regulations about smart meters clearly intended those meters to be VOLUNTARY.** (emphasis below by Complainant)

Federal

Summary: H.R.6 — 109th Congress (2005-2006)

Subtitle E: Amendments to PURPA - (Sec. 1251) Amends the Public Utility Regulatory Policies Act of 1978 (PURPA) to require each electric utility **to make available upon request net metering and time-based (smart) metering service**, including credits for consumers with large loads who enter into pre-established peak load reduction agreements that reduce a utility's planned capacity obligations.

The Energy Policy Act of 2005 (16 U.S.C. §2621(d)(14)(A) and (C) very clearly establishes an optional standard by which utilities are required to make a time-variable rate structure (often accomplished with wireless, digital smart meters, but also with analog meters and wired meters) available **“upon customer request.”**

“Not later than 18 months after August 8, 2005, each electric utility shall offer each of its customer classes, and provide individual customers upon customer request, a time-based rate schedule under which the rate charged by the electric utility varies during different time periods and reflects the variance, if any, in the utility's costs of generating and purchasing electricity at the wholesale level. The time-based rate schedule shall enable the electric consumer to manage energy use and cost through advanced metering and communications technology Each

electric utility subject to subparagraph (A) **shall provide each customer requesting a time-based rate with a time-based meter** capable of enabling the utility and customer to offer and receive such rate, respectively.” 16 U.S.C. §2621(d)(14)(A) and (C).

Thus Complainant asserts that the The Federal energy act of 2005 intended smart meters to be offered, not mandated.

<https://www.congress.gov/bill/109th-congress/house-bill/6>

Smart Meter Law in Pennsylvania:

PUBLIC UTILITY CODE (66 PA.C.S.) - OMNIBUS AMENDMENTS

Act of Oct. 15, 2008, P.L. 1592, No. 129 Cl. 66

Session of 2008

No. 2008-129

HB2200 §2807(f)7(2)(i)

<http://www.legis.state.pa.us/WU01/LI/LI/US/HTM/2008/0/0129..HTM>

(2) Electric distribution companies shall furnish smart meter technology as follows:

(i) **Upon request from a customer that agrees to pay**

the cost of the smart meter at the time of the request.

(ii) In new building construction.

(iii) In accordance with a depreciation schedule not to exceed 15 years.

PA Act 129

Act 129 of 2008 amended Section 2807 of the Public Utility Code by adding a requirement for electric distribution companies (EDCs) with greater than 100,000 customers to submit, for PUC approval, a smart meter technology procurement and installation plan. 66 Pa. C.S. 2807(f). All seven EDCs that were required to install smart meters have approved smart meter plans.

[Implementation Order](#) – Smart Meter Procurement and Installation Implementation Order – Adopted at June 18, 2009, Public Meeting. Entered June 24, 2009. Docket No. M-2009-2092655.

The Implementation Order of Act 129 is found here at the PA PUC website in full under:

“ORDERS –Implementation Order”

http://www.puc.state.pa.us/filing_resources/issues_laws_regulations/act_129_information/smart_meter_technology_procurement_and_installation.aspx

On Page 9 of the smart meter implementation order,

“item. 2: Customer Request” it states: (emphasis from Complainant)

As pointed out above, the Commission will not require EDCs to deploy smart meters until after the EDC’s Commission approved network development and installation grace period ends. **Once this grace period expires, each covered EDC must supply a smart meter upon request by a customer, per Act 129.**

and further: **(emphasis from Complainant)**

The Commission recognizes that deployment of smart meters on a piecemeal or individual basis could involve greater costs than a systematic system-wide deployment. The General Assembly recognized this as well when it included the proviso that the customer requesting the smart meter must agree to pay for the cost of the smart meter. **However, the Commission does not believe it was the intent of the General Assembly for this customer to pay the entire cost of the smart meter and its supporting infrastructure. Such a requirement would be so cost-prohibitive that no customer would request a smart meter.** Furthermore,

the customer would be paying for the smart meter directly and also through the EDC's cost recovery mechanism. Such a result would be an absurd, impossible and unreasonable outcome, which is contrary to the rules of statutory construction. See 1 Pa.C.S. § 1922(1). To avoid this absurd result, the Commission believes that only the incremental costs over and above the cost for system-wide deployment are to be paid by customers requesting early deployment of a smart meter. ---

The Complainant contends that this Pennsylvania bill was intended to make smart meters VOLUNTARY in Pennsylvania. The meters were never intended to be forced on consumers. The sentence above:

“Such a requirement would be so cost-prohibitive that no customer would request a smart meter”

suggests that the **intent of Act 129 was that the utility would make the smart meter appealing to the customer with an affordable price** (and perhaps by marketing the meter through advertising), so the customer would request one, not to impose the meter with threat of shutting off electric service.

=====

~~Complainant finds that the PA PUC website affirms the voluntary nature of smart meter placement. Note the phrase “with consumer consent” below.~~

~~From the PUC website on smart meters: (see image below)~~

~~http://www.puc.state.pa.us/filing_resources/issues_laws_regulations/act_129_information/smart_meter_technology_procurement_and_installation.aspx~~

~~under the heading: “Smart Meter Fact Sheet”~~

~~“[Smart Meter Q&A](#) – Downloadable PDF Fact sheet.”~~

~~it states:~~

~~“Smart meters have the following basic functions: Measure the electricity used; with customer consent, remotely coordinate electricity consumption; and interface with EDC’s to identify outages and provide real time visibility into the operational status of an electrical distribution system.”~~

The statement: ~~“with customer consent, remotely coordinate electricity consumption;”~~ makes it clear that customer consent is required to install an AMI meter, which will ~~“remotely coordinate electricity consumption”~~, which it does through its RF microwave signaling function and mesh network system.

That same page (top) states that: “Pennsylvania’s Act 129 requires the state’s seven largest electric utilities to develop energy efficiency and conservation plans.....”

ie. It requires the utilities to develop a plan. It does NOT require that customers be compelled to purchase a smart meter (especially if it would cause them harm.) Nor does it state that a customer’s electricity should be shut off, even if their bills are paid in full, for refusing to use a particular model of meter.

Here is the enlarged section of that page and below the entire page from the PUC website:

WHAT IS A SMART METER?

A smart meter is an advanced meter that measures electric usage more often than conventional meters and sends that information more quickly to the customer and the EDC. Through two-way communication, smart meters also can monitor the electric distribution system to ensure it is functioning properly.

Smart meters have the following basic functions: measure the electricity used; with customer consent, remotely coordinate electricity consumption; and interface with EDCs to identify outages and provide real-time visibility into the operational status of an electrical distribution system.



Find out more about Smart Meters and Act 129, and shop for your supplier, at www.PAPowerSwitch.com

PAPowerSwitch
Pennsylvania Public Utility Commission

ARE SMART METERS REQUIRED IN PENNSYLVANIA?

Yes. Pennsylvania's Act 129 of 2008 requires the state's seven largest electric distribution companies (EDCs) to develop energy efficiency and conservation (EE&C) plans and adopt other methods of reducing electricity used by customers – including the use of smart meters by their customers. The EDCs impacted by Act 129 are Duquesne Light; Met-Ed; Penn Power; PECO Energy; Penelec; PPL Electric Utilities; and West Penn Power.

The Public Utility Commission (PUC) is charged with implementing Act 129 and helping consumers and electric utilities reduce energy consumption, especially at peak times during the day. Smart meters are being installed in new construction and at individual customers' request, with the goal of all customers utilizing smart meters by 2023.

WHAT IS A SMART METER?

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Smart meters have the following basic functions: measure the electricity used; with customer consent, remotely coordinate electricity consumption; and interface with EDCs to identify outages and provide real-time visibility into the operational status of an electrical distribution system.

HOW WILL I BENEFIT FROM THE USE OF A SMART METER?

- Smart meters can help your utility restore your service faster during power outages.
- Smart meters can help you better understand how much electricity you are using throughout the day.
- Smart meters can reduce meter-reading costs and help detect theft of electricity.

HOW COULD A SMART METER HELP ME SAVE ON MY ELECTRIC BILL?

Customers on time-of-use rate plans can use the information from smart meters to shift their usage to different times of the day when electricity costs less to produce. By using electricity more efficiently, customers can realize savings on their electric bills. For example, rather than running the dishwasher right after dinner when electric prices are higher, customers can wait until later in the evening to run the dishwasher.

IS THERE CURRENTLY A SMART METER CHARGE ON MY BILL?

Yes. The charge will be included as a separate line item or in your electric utility's base rate. You can confirm that information by contacting your utility. This charge covers the costs of assessing and deploying smart meter technology in accordance with Act 129. Under the law, utilities may begin assessing the surcharge for the work being done prior to actual installation of the meter. This charge applies to all customers.

OPT -OUT

Complainant identified 9 states which have offered residents the freedom to opt out of having a smart meter. With this Opt-Out rule, smart meters are no longer mandatory in those states. Opt-out is consistent with the idea that, **where there is risk, there must be choice.** (Complainant Exhib. 22)

In his exhibit #23 Complainant describes a ruling that **opt-out fees levied on a disabled person violate California law.**

Opt out states include: (Complainant exhibit 22-~~and Oklahoma added opt out since then~~)

Maryland, Vermont, Maine, Texas, California, Arizona, Washington state, Florida, Hawaii, Oklahoma. All offer smart meters and all have opt outs.

Smart meter roll outs have not even hit many states yet. **However, virtually every state public utility commission in the United States which offers smart meter AMI technology, after holding public hearings, has mandated either opt outs or opt ins for smart meter deployment on residential property.** By being one

of the only states in the Union which has smart meters and does not offer opt outs from smart metering, Pennsylvania is discriminating against its most vulnerable citizens (Kreider v PECO: C-2015-2469655)

Note: The PA PUC never held hearings on smart meter Opt –Out

PA 129 is an OPT-IN regulation

The PA PUC website hosts a document , “Smart Meter Q&A” which states on page 2, that “state law does not allow a customer to opt out...” Counsel for the Defendant Renner echoed that during the hearing (Transcript p.185, 2,3,4).

Act 129 which created the smart meter program, created it as an OPT- IN program, stressing that the customer will “request” a smart meter. **It is poor logic to argue that Act 129 has no Opt Out rule, for it doesn’t need one, since it was written as a voluntary or OPT IN bill!**

Re: Pa Opt Out Bills Thwarted

Pa Opt Out Bills have been submitted for the last 6 years but were prevented from getting voted on by Consumer Affairs Committee Chairman Rep. Robert Godshall,

who refused to let the bills out of committee for a vote. He has prevented the citizens of Pennsylvania from pursuing the normal process of petitioning the government for change.

<http://stopsmartmeterspa.blogspot.com/2015/>

Smart meter opt out bills have been introduced in both the PA legislature and the PA Senate. They included former HB 899, HB 902, and HB 906, and more recently:

See: HB 1564, and its companion Senate bill: SB 441.

1. PA HOUSE BILL 1564

<http://www.legis.state.pa.us/cfdocs/Legis/CSM/showMemoPublic.cfm?chamber=H&SPick=20170&cosponId=21661>

2. PA SENATE BILL 441

<http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2017&sessInd=0&billBody=S&billTyp=B&billNbr=0441&pn=0432>

Are Opt out fees justified? - Cost comparison

~~The Defendant would actually save money by using non smart meters. Non smart meters cost, on average, \$35 or less, and have a useful life of upwards of 50 years without servicing. Smart meters cost on average, \$350 to \$500 and have a useful life of less than 15 years.~~

-(Washington Utilities and Transportation Commission Policy and Interpretive Statement on Customer Choice for Advanced Meter Installation, Docket U-180117 Service Date April 10, 2018)

No hardship from offering Opt-Out

There is not even anecdotal evidence that any of the states which offer smart meter opt outs, including Maryland, have suffered any hardship because of customer opt outs from smart meter deployment. In fact, the Maryland PSC has opined that, because more customers have opted out, Maryland smart meter opt out fees must be reduced. (See Maryland PSC Order 85294 issued January 7, 2013 and Maryland PSC Order 87264 issued November 24, 2015. (*Murphy v PECO Op. Cit.* Statement 2S Surrebuttal Testimony at p 24, lines 5-8.)

~~**Note: The New Mexico Public Regulation Commission just rejected smart meters altogether.**~~

~~<https://www.metering.com/industry-sectors/pnm-smart-meters/>~~

~~**The state Public Regulation Commission has announced its unanimous rejection of Public Service Company of New Mexico's (PNM) proposal for a new remote metering system.** PRC Chairman Sandy Jones issued a statement saying the regulatory body rejected the smart meters, "citing rate increases, an excessive opt out fee and layoffs as deal breakers." Jones said he felt the programme "was clearly not in the best interest of the public."~~

Also see Maine PUC December 19, 2014, Opinion of Commissioner Littell (credible evidence of harm from non ionizing radiation from testimony of Professor Hardell, Dr. Darius Leszczynski, *Id.*, p. 39-41, and from several Maine residents who opted out on advice of personal physicians. *Id* at 57-58), *See* Washington Utilities and Transportation Commission Policy and Interpretive Statement on Customer Choice for Advanced Meter Installation, Docket U-180117 Service Date April 10, 2018 (in examining record plus "conditions employed generally in other jurisdictions across the country" .. "we prefer that utilities regulated by the Commission offer an opt-out option to their customers" *Id* at 4. (Note: this Statement on page 2 is in conflict with the PA PUC interpretation of

Act 129. The Washington UTC Statement contains wording on page 2 regarding Pennsylvania: that Pennsylvania and Vermont legislatures "mandated that utilities offer an opt-out option for customers" *Id.* at 2.) See also, Maryland SEE Maryland PSC Order 85294 issued January 7, 2013 and Maryland PSC Order 87264 issued November 24, 2015 (mandating opt outs, and examining opt out fee programs, reducing opt out fees based on number of opt outs and cost savings to utilities).

The Castle Doctrine: House Bill No. 40 Session of 2011

Complainant asserts that since he is electromagnetically hypersensitive (EHS), placing the Defendant's AMI meter on his residence or right next to it, violates Item 4 of the Castle Doctrine (House Bill No. 40 Session of 2011).

<http://www.legis.state.pa.us/CFDOCS/Legis/PN/Public/btCheck.cfm?txtType=HTM&sessYr=2011&sessInd=0&billBody=H&billTyp=B&billNbr=0040>

(4) Persons residing in or visiting this Commonwealth have a right to expect to remain unmolested within their homes or vehicles.

Complainant asserts that item (4) of the Castle Doctrine applies in this case because : For a person with electromagnetic hypersensitivity, having an AMI meter

sending microwaves into the house and also creating electromagnetic fields due to transients on the house wiring 24 hours a day, constitutes a high degree of molestation. Complainant's doctors provided written statements that exposure to smart meter radiation, by aggravating his insomnia, creates a life threatening situation for him.(Complainant Exhib .1)

Since the AMI meter on the Complainant's neighbor's wall is only inches from the Complainant's house, and the meter radiates RF radiation up to 1400 feet, that meter also constitutes a violation of the Castle Doctrine for the Complainant. (The 1400 feet was testified to by Complainant's expert witness W. Bathgate – Transcript p.54, 16-25)

Merriam Webster Dictionary: Definition of molest: “to annoy, disturb, or persecute especially with hostile intent or injurious effect”

<https://www.merriam-webster.com/dictionary/molest>

Is the Defendant providing safe service?

The Defendant is mandated by law to “maintain adequate, efficient, safe, and reasonable service and facilities”..... 66 Pa.C.S.A. § 1501

“Every public utility shall furnish and maintain adequate, efficient, safe, and reasonable service and facilities, and shall make all such repairs, changes, alterations, substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public. –“

Complainant asserts that the word “SAFE” in general does not mean safe for those who are hypersensitive sensitive (EHS). If Defendant’s mandate is to supply “safe” service, then there must be reasonable accommodation for those who are electromagnetically sensitive. One size does not fit all.

Intention of Act 129 - Does It Benefit The Public?

PA Act 129 which initiated the smart meter program was intended to be voluntary for customers. We may assume that Act 129, on some level, was meant to improve service and benefit the public. It certainly was never meant to shut off the electric service of someone whose bills were always paid on time, because they declined a particular model of electric meter due to health, privacy or fire safety considerations.

Nuremberg Code (Complainant's Exhib. 24) Item 1. **“The voluntary consent of the human subject is absolutely essential.”**

<http://www.nejm.org/doi/full/10.1056/NEJM1997111333372006>

Much research has been done on cell phone radiation and reference is made to it in the present Complaint. The reason that smart meters (AMI in this case) are not referenced in the research, is that **there have been no independent, long term studies of the safety of smart meters.** At best, their safety is debatable. **Thus, the placing of smart meters on millions of homes by mandate, constitutes a mass experiment on a population without its consent. The placing of smart meters on homes by mandate violates items 1, 4, 5,7 , 9, ~~10~~ of the Nuremberg Code.**

Complainant asserts that where there is risk, there must be choice.

The Nuremberg Code

1. The voluntary consent of the human subject is absolutely essential.

This means that the person involved should have legal capacity to give consent; should be so situated as to be able to exercise free power of choice, without the intervention of any element of force, fraud, deceit, duress, overreaching, or other ulterior form of constraint or coercion; and should have sufficient knowledge and comprehension of the elements of the subject matter involved as to enable him to

make an understanding and enlightened decision. This latter element requires that before the acceptance of an affirmative decision by the experimental subject there should be made known to him the nature, duration, and purpose of the experiment; the method and means by which it is to be conducted; all inconveniences and hazards reasonably to be expected; and the effects upon his health or person which may possibly come from his participation in the experiment.

The duty and responsibility for ascertaining the quality of the consent rests upon each individual who initiates, directs or engages in the experiment. It is a personal duty and responsibility which may not be delegated to another with impunity.

2. The experiment should be such as to yield fruitful results for the good of society, unprocurable by other methods or means of study, and not random and unnecessary in nature.

3. The experiment should be so designed and based on the results of animal experimentation and a knowledge of the natural history of the disease or other problem under study that the anticipated results will justify the performance of the experiment.

4. The experiment should be so conducted as to avoid all unnecessary physical and mental suffering and injury.

5. No experiment should be conducted where there is an a priori reason to believe that death or disabling injury will occur; except, perhaps, in those experiments where the experimental physicians also serve as subjects.

6. The degree of risk to be taken should never exceed that determined by the humanitarian importance of the problem to be solved by the experiment.

7. Proper preparations should be made and adequate facilities provided to protect the experimental subject against even remote possibilities of injury, disability, or death.

8. The experiment should be conducted only by scientifically qualified persons. The highest degree of skill and care should be required through all stages of the experiment of those who conduct or engage in the experiment.

9. During the course of the experiment the human subject should be at liberty to bring the experiment to an end if he has reached the physical or mental state where continuation of the experiment seems to him to be impossible.

~~**10. During the course of the experiment the scientist in charge must be prepared to terminate the experiment at any stage, if he has probable cause to believe, in the exercise of the good faith, superior skill, and careful judgment**~~

~~required of him, that a continuation of the experiment is likely to result in injury, disability, or death to the experimental subject.~~

QUESTIONS IN THIS CASE

1. May a corporation compel an individual (Complainant) to purchase and have placed on their residence, and/or a residence that adjoins it, a device, in this case a smart meter, that emits radiation which hundreds of independent scientists and doctors worldwide have declared to be unsafe? Or to be generous, a radiation about which there is heated debate among scientists about its safety?
2. May a corporation compel an individual (Complainant) with a disability, in this case, electromagnetic hypersensitivity (EHS), to purchase and have on his residence and/or a residence that adjoins it, an AMI meter that exposes him 24/7 to RF microwave radiation as well as electromagnetic fields (from transients placed on the house wiring due to the switched mode power supply) both of which are inimical to people with his disability and which cause him harm from brutal insomnia and difficulty concentrating, impacting the quality of his life, especially when there is the perfectly good option of the analog meter, which emits no RF

radiation, nor produces transient currents, nor has any fire hazard, and which has worked dependably for many years.

3. Shall the Defendant be permitted to compel the Complainant, under threat of cutting off electric service, to purchase and have placed on his residence and/or a residence that adjoins it, an AMI smart meter which emits RF radiation and induces electromagnetic fields throughout his residence, and which differs from other common radiation emitting devices such as cell phones, in that one can decide whether to use a cell phone, or how often to use to use it, but which option does not exist with the AMI meter, as it is on and radiating 24/7 and can't be shut off, and especially considering that the Complainant is electromagnetically sensitive?

4. As hundreds of scientists and doctors with specialized knowledge in the biological effects of non- ionizing radiation, working independently of the wireless industry, have declared that radiation such as emitted by the Defendant's AMI meter clearly poses a risk to health, though the degree of risk may be debated by others, shall the Complainant, who by virtue of his disability is especially harmed by those radiations, be exposed to that risk by mandate, and have no choice?

5. May the Defendant be permitted to misinterpret a law (Act 129) and its intent so grossly, that instead of improving service to consumers, it shuts off service, even

while their bills are all paid, because they refuse a particular model of electric meter for health, safety or privacy reasons?

Conclusions

Complainant suffers from Electromagnetic Sensitivity (EHS) and has experienced brutal insomnia and difficulty concentrating since Defendant's AMI meter was installed on the house next door to his residence which shares a common wall with Complainant's residence. The RF and electromagnetic fields from the Defendant's meter are a clear danger to his health and the quality of his life, and four medical doctors submitted letters to that effect.

Electromagnetic Sensitivity (EHS) is recognized by governments, organizations, doctors and scientists worldwide. The consensus is that EHS individuals should avoid exposure to the extent possible, through accommodation by law when necessary. While Defendant argues that the AMI meter is safe, "safe" in general does not mean safe for those who are sensitive.

Defendant witness Christopher Davis declared that the AMI meter emits 1,720 transmissions per day, which is once every 1.2 minutes. (Transcript: p. 262 - 11,12). So even by the Defendant's lower estimate, the Complainant is subjected

to an incessant stimulus, day and night, that he is hypersensitive to, and he cannot escape it.

The filing of this Complaint was not an intellectual exercise for the Complainant. He is 73 years old and has been struggling to sleep and to survive each day since the AMI meter was installed next door.

Complainant has presented evidence from scientists around the world that non-ionizing radiation, including Radio Frequency (RF) radiation, such as that emitted day and night by the AMI meter, can cause harm. He has further provided evidence that he is electromagnetically sensitive which puts him at special and immediate risk. While the degree of risk to health from the AMI meter's radiation and electromagnetic fields may be debated, there is clear evidence of risk.

Complainant believes that where there is risk, there must be choice.

The complainant is not seeking monetary rewards, and waging the complaint has consumed much time and energy and mental, emotional and physical effort, and has required financial expense, and may yet lead to months or years of litigation. He pursues this case as a matter of survival only.

What is at stake for the Complainant is whether he will ever again have restful sleep, whether he will ever enjoy the quality of life he had previous to the meter being installed and whether in fact he will survive.

What is at stake for the Defendant, is whether they will receive electric usage data from two AMI meters, or from two standard Analog meters. Analog meters have been used successfully for many years, and pose no problems for people with electromagnetic hypersensitivity, nor any radiation or fire hazards.

The Laws quoted earlier in this Brief and statements on the PUC website itself, indicate that both the federal and Pennsylvania law never intended the smart meter program to be forced on the consumer with the threat of shutting off electric service, even though it was paid for, and especially when it would cause harm to the resident.

If cigarettes companies had tried to mandate cigarette smoking that would have seemed absurd. Imagine if they declared that you had to inhale their product 24/7, even while you slept. They advertised instead. If the Defendant is so convinced of the advantages of their product, they have the resources to advertise and convince people to accept their product. Isn't that the way business is conducted in this society?

Requested Relief

1. ~~Complainant's electromagnetic sensitivity is a disability covered by the Americans with Disabilities Act (ADA) and he wishes the Defendant to make a reasonable accommodation for his disability by:~~

Replacing the AMI meter at 197 Strawberry st. (which adjoins Complainant's residence) with a genuine Analog meter (non electronic, non-transmitting, no SMPS) and see that only analog meters are placed at that address should another meter ever be required. Replacing the AMI meter at 197 Strawberry Street with an analog meter, must be carried out without any unnecessary interruption in service, just as the installation of the smart meter did not require unnecessary interruption in service.

(Please note that the Defendant ordered an AMI meter placed on the house at 197 Strawberry St. without permission of the owner, and if she had refused, they would have placed it anyway, or threatened her with cut off of service, unless she filed a formal complaint.)

2. The Defendant will cease and desist in its efforts to place an AMI meter on Complainant's residence at 199 Strawberry Street and allow him to keep his present meter. Should a change of meter ever be required, Defendant will replace the Complainant's current meter with a genuine Analog meter (non electronic, non-transmitting).

Considering the suffering Complainant endures from the Defendant's AMI meter, his demands are modest, not punitive, and easily met.
