

April 19, 2018

Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
P.O. Box 3265  
Harrisburg, Pennsylvania 17105-3265

RECEIVED

APR 19 2018

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

RE: Notices to Plead, Docket No. C-2018-3000647

Dear Ms. Chiavetta,


I have received two Notices to Plead, each with the same Docket Number. On one, it says I have 10 days to respond, on the other it says I have 20 days to respond. This letter is to serve as my written response within the 10-day time period from the date I received both Notices to Plead. I would like to take this issue to court so that my objection to having a smart meter installed in my home can be heard and decided on by a judge. When I called West Penn Power to ask what I could do to keep from having a smart meter installed, I was told to file an informal complaint with the Pennsylvania Public Utility Commission. When I called the utility commission and explained my concerns and what I was told by someone at West Penn Power, I was told I would not likely get the answer I want with an informal complaint and would have a better chance of being heard if I filed a formal complaint. I'm not familiar with legal language and requirements to pursue my complaint in court, but it appears by Lauren Lepkoski's cover letter on the Notices to Plead that my response here is to be considered my way of filing a Reply to New Matter. Please let me know if there's anything more you need from me.

After reading both Notices to Plead, I realize now that by writing in my complaint the following sentence, "The resolution I'm seeking is for an option to refuse [installation of a smart meter in my home] to be available not just for myself, but for anyone who is not comfortable with having a smart meter installed on their home", that it may appear as though I intend to 'speak' for the multitudes here in Pennsylvania, and Ms. Lepkoski is right to say that I have no legal right or standing to do that. If I had realized at the time that this statement could be legally interpreted to mean that I legally intend to represent 'everyone', I would never have stated my request that way. I was simply speaking from the heart with an inclusive intention for the common good with the hope that my one lone objection might clear the way for others who feel as I do. Surely, it would save the courts a lot of time and money to not have to deal with cases like mine one by one, as I'm sure there will be plenty more coming along within the next few years, if not sooner. But it seems that I need to make it clear here that my primary intention with this formal complaint is to be allowed to choose not to have a smart meter installed on *my* home. It seems only fair that if one person has a right to say no to something they consider unsafe when it comes to protecting their family in their own home, everyone should have that right, so as I filled out that form, I did not want to appear as though I, alone, wanted to be the 'exception' to the law.

Whether or not the many documents I've found online that contest the safety of smart meters prove that they are not safe, the fact is that they have not yet been proved completely safe by non-industry related studies. I personally am *not* convinced that they are safe, and therefore do not feel safe having one on my home. I'm including just a few pages of what I've found here for you and I assume they will ultimately be presented to the court as well.

I am sending copies of this letter as instructed to Lauren M. Lepkoski and Tori L. Giesler, at FirstEnergy Service Company. I did not see anything in the Notices to Plead with the name of the judge that will preside over this case.

Sincerely,

  
Susan J. Lambert



# American Academy of Environmental Medicine

6505 E Central • Ste 296 • Wichita, KS 67206  
Tel: (316) 684-5500 • Fax: (316) 684-5709  
[www.aaemonline.org](http://www.aaemonline.org)

RECEIVED

APR 19 2018

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

## Executive Committee

### President

A.L. Barrier, M.D., FFAO-HNS  
One Hospital Drive  
Columbia, MO 65212

### President-Elect

Amy Dean, D.O.  
1955 Pauline Blvd Ste 100 D  
Ann Arbor, MI 48103

### Secretary

Charles L. Crist, M.D.  
3009 Falling Leaf Ctr, Ste 1  
Columbia, MO 65201

### Treasurer

James W. Willoughby, II, D.O.  
24 Main St.  
Liberty, MO 64068

### Immediate Past President

Robin Bernhoft, M.D., FAAEM

### Advisor

Gary R. Oberg, M.D., FAAEM

### Board of Directors

Craig Bass, M.D.  
Amy Dean, D.O.  
Stephen Genuis, M.D., FAAEM  
Martha Grout, M.D., MD(H)  
Janette Hope, M.D.  
W. Alan Ingram, M.D.  
Derek Lang, D.O.  
Glenn A. Toth, M.D.  
Ty Vincent, M.D.

### Continuing Medical Education

Chairman  
James W. Willoughby, II, D.O.  
24 Main St.  
Liberty, MO 64068

### Executive Director

De Rodgers Fox

January 19, 2012

Decision Proposed Decision of Commissioner Peevy (Mailed 11/22/2011)  
BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA  
On the proposed decision 11-03-014

Dear Commissioners:

The Board of the American Academy of Environmental Medicine opposes the installation of wireless "smart meters" in homes and schools based on a scientific assessment of the current medical literature (references available on request). Chronic exposure to wireless radiofrequency radiation is a preventable environmental hazard that is sufficiently well documented to warrant immediate preventative public health action.

As representatives of physician specialists in the field of environmental medicine, we have an obligation to urge precaution when sufficient scientific and medical evidence suggests health risks which can potentially affect large populations. The literature raises serious concern regarding the levels of radio frequency (RF - 3KHz - 300 GHz) or extremely low frequency (ELF - 300Hz) exposures produced by "smart meters" to warrant an immediate and complete moratorium on their use and deployment until further study can be performed. The board of the American Board of Environmental Medicine wishes to point out that existing FCC guidelines for RF safety that have been used to justify installation of "smart meters" only look at thermal tissue damage and are obsolete, since many modern studies show metabolic and genomic damage from RF and ELF exposures below the level of intensity which heats tissues. The FCC guidelines are therefore inadequate for use in establishing public health standards. More modern literature shows medically and biologically significant effects of RF and ELF at lower energy densities. These effects accumulate over time, which is an important consideration given the chronic nature of exposure from "smart meters". The current medical literature raises credible questions about genetic and cellular effects, hormonal effects, male fertility, blood/brain barrier damage and increased risk of certain types of cancers from RF or ELF levels similar to those emitted from "smart meters". Children are placed at particular risk for altered brain development, and impaired learning and behavior. Further, EMF/RF adds synergistic effects to the damage observed from a range of toxic chemicals. Given the widespread, chronic, and essentially inescapable ELF/RF exposure of everyone living near a "smart meter", the Board of the American Academy of Environmental Medicine finds it unacceptable from a public health standpoint to implement this technology until these serious medical concerns are resolved. We consider a moratorium on installation of wireless "smart meters" to be an issue of the highest importance.

The Board of the American Academy of Environmental Medicine also wishes to note that the US NIEHS National Toxicology Program in 1999 cited radiofrequency radiation as a potential carcinogen. Existing safety limits for pulsed RF were termed “not protective of public health” by the Radiofrequency Interagency Working Group (a federal interagency working group including the FDA, FCC, OSHA, the EPA and others). Emissions given off by “smart meters” have been *classified by the World Health Organization International Agency for Research on Cancer (IARC) as a Possible Human Carcinogen.*

Hence, we call for:

- An immediate moratorium on “smart meter” installation until these serious public health issues are resolved. Continuing with their installation would be extremely irresponsible.
- Modify the revised proposed decision to include hearings on health impact in the second proceedings, along with cost evaluation and community wide opt-out.
- Provide immediate relief to those requesting it and restore the analog meters.

Members of the Board  
American Academy of Environmental Medicine

RECEIVED

APR 19 2018

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

## Scientists Challenge CCST Conclusions

The California Council on Science and Technology (CCST) Smart Meter Report, **Health Impacts of Radio Frequency From Smart Meters** was released in April, 2011. This report was produced in response to California Assembly members Jared Huffman (Marin) and Bill Monning (Santa Cruz) inquiry into the safety of smart meter wireless technology and the possible inadequacy of the federal radio frequency radiation (RF) safety standards. International science and medical experts from Israel, Sweden, Canada, Greece and the US criticize the CCST findings. Although previous headlines varied about the results of the study, these experts agree, the study fails to protect public health.

**Elihu D Richter MD, MPH** from Israel is “a medical epidemiologist who has assessed source-exposure-effect relationships for many chemical and physical agents over the past 40 years.” Dr. Richter writes, “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, it is now fairly certain that there will be widespread adverse public health impacts.”

**Dr. David Carpenter**, public health physician and former Dean of the School of Public Health at the University at Albany, New York writes, “This document is not an accurate description of the state of the science on the issue of radiofrequency fields, and is full of inaccuracies.” He calls the report “faulty” and states, “The evidence for adverse effects of radiofrequency radiation is currently strong and grows stronger with each new study.”

**Olle Johansson, PhD**, Swedish Professor from the Department of Neuroscience, Karolinska Institute writes, “Many smart meters are close to beds, kitchens, playrooms, and similar locations. These wireless systems are never off, and the exposure is not voluntary. The smart meters are being forced on citizens everywhere. Based on this, the inauguration of smart meters with grudging and involuntary exposure of millions to billions of human beings to pulsed microwave radiation should immediately be prohibited...”

**Lukas H. Margaritis**, Professor of Cell Biology and Electron Microscopy and Adamantia F. Fragopoulou, Biologist and Researcher from the

University of Athens, Greece, comment, "The California Council of Science and Technology has released a report on WIRELESS SMART METERS, in which any relation with health hazards has been bypassed. It is however 'common secret' between the researchers in the field of electromagnetic biology that such a statement has absolutely no scientific validity..."

**Raymond Richard Neutra MD, DrPH**, (CA EMF program) concludes his comments by stating, "This is not the way I would like to see public policy pursued. Unfortunately you are not alone in this pattern of language use, hidden assumptions and making the uncertain seem certain so as to provide cover for policy."

**California Department of Public Health** commented on the CCST study stating, "CDPH suggests further review of the literature on non-thermal effects, which is complicated and controversial, but does not support a claim of no non-thermal health effects from radio frequency electromagnetic fields."

**Dr. Carl Maret**



# County of Santa Cruz 0257

## HEALTH SERVICES AGENCY

POST OFFICE BOX 962, 1060 EMELINE AVE., SANTA CRUZ, CA 95081-0962  
 TELEPHONE: (831) 454-4114 FAX: (831) 454-5049 TDD: (831) 454-4123

**Poki Stewart Namkung, M.D., M.P.H.**  
**Health Officer**  
**Public Health Division**

### Memorandum

RECEIVED

APR 19 2018

PA PUBLIC UTILITY COMMISSION  
 SECRETARY'S BUREAU

Date: January 13, 2012  
 To: Santa Cruz County Board of Supervisors  
 From: Poki Stewart Namkung, M.D., M.P.H. *PON*  
 Health Officer  
 Subject: Health Risks Associated With SmartMeters

### Overview

On December 13, 2011, Santa Cruz County Board of Supervisors directed the Public Health Officer to return on January 24, 2012, with an analysis of the research on the health effects of SmartMeters.

### **Background**

In order to analyze the potential health risks associated with SmartMeters, the following questions should be asked:

- 1) What is the SmartMeter system and what is the potential radiation exposure from the system?
- 2) What scientific evidence exists about the potential health risks associated with SmartMeters?
- 3) Are there actions that the public might take to mitigate any potential harm from SmartMeters?

SmartMeters are a new type of electrical meter that will measure consumer energy usage and send the information back to the utility by a wireless signal in the form of pulsed frequencies within the 800 MHz to 2400MHz range, contained in the microwave portion of the electromagnetic spectrum. SmartMeters are considered part of 'smart grid' technology that includes: a) a mesh network or series of pole-mounted wireless antennas at the neighborhood level to collect and transmit wireless information from all SmartMeters in that area back to the utility; b) collector meters, which are a special type of SmartMeter that collects the radiofrequency or microwave radiation signals from many surrounding

buildings (500-5000 homes or buildings) and sends the information back to the utility; and c) proposed for the future, a power transmitter to measure the energy use of individual appliances (e.g. washing machines, clothes dryers, dishwasher, etc) and send information via wireless radio frequency signal back to the SmartMeter. The primary rationale for SmartMeters and grid networks is to more accurately monitor and direct energy usage.

The public health issue of concern in regard to SmartMeters is the involuntary exposure of individuals and households to electromagnetic field (EMF) radiation. EMFs are everywhere, coming from both natural and man-made sources. The three broad classes of EMF are:

- extremely low frequency, ELF (from the sun or powerlines)
- radio frequency, RF (from communication devices, wireless devices, and SmartMeters)
- extremely high frequency, known as ionizing radiation (x-rays and gamma rays)

Much of this exposure is beyond our control and is a matter of personal choice; however, public exposure to RF fields is growing exponentially due to the proliferation of cell phones, and wireless fidelity (Wi-Fi) technology. To understand the relationship between EMF from SmartMeters and other sources, it is helpful to view the electromagnetic spectrum:

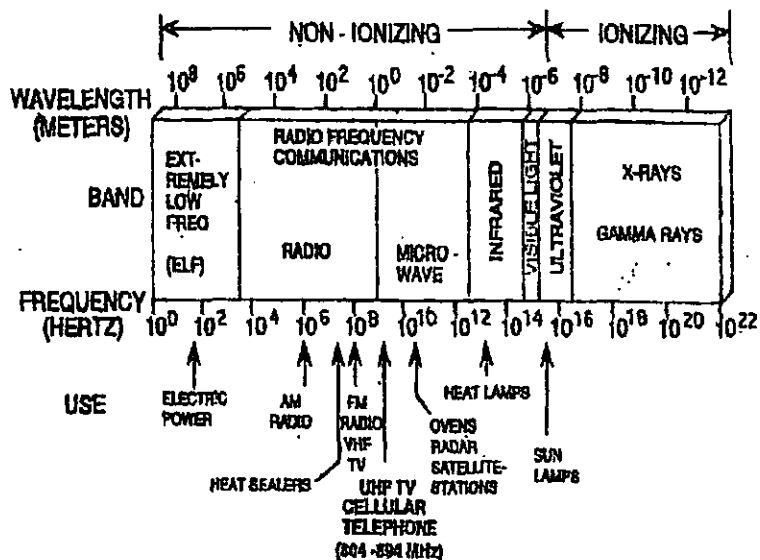


Fig. 1: The electromagnetic spectrum, showing the relations between ELF and RF fields, wavelength and frequency, and the ionizing and non-ionizing portions of the spectrum.

The Federal Communications Commission (FCC) has adopted limits for Maximum Permissible Exposure (MPE) that are based on exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP). The limits vary with

the frequency of the electromagnetic radiation and are expressed in units of microwatts per centimeter squared. A SmartMeter contains two antennas whose combined time-averaged public safety limit of exposure is  $655\mu\text{W}/\text{cm}^2$  (Sage, 2011). According to the California Council on Science and Technology (CCST) Report (2011), within distances of three to ten feet, SmartMeters would not exceed this limit. However, CCST did not account for the frequency of transmissions, reflection factors, banks of SmartMeters firing simultaneously, and distances closer than three feet. There are numerous situations in which the distance between the SmartMeters and humans is less than three feet on an ongoing basis, e.g. a SmartMeter mounted on the external wall to a bedroom with the bed placed adjacent to that mounting next to the internal wall. That distance is estimated to be one foot. The CCST Report also states that SmartMeters will generally transmit data once every four hours, and once the grid is fully functional, may transmit "more frequently." It has been aptly demonstrated by computer modeling and real measurement of existing meters that SmartMeters emit frequencies almost continuously, day and night, seven days a week. Furthermore, it is not possible to program them to not operate at 100% of a duty cycle (continuously) and therefore it should not be possible to state that SmartMeters do not exceed the time-averaged exposure limit. Additionally, exposure is additive and consumers may have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices such as cell and cordless phones, personal digital assistants (PDAs), routers for internet access, home security systems, wireless baby surveillance (baby monitors) and other emerging devices. It would be impossible to know how close a consumer might be to their limit, making safety a uncertainty with the installation of a mandatory SmartMeter.

This report will focus on the documented health risks of EMF in general, the relevance of that data to SmartMeters exposure, the established guidelines for RF safety to the public at large, and then provide recommendations to ameliorate the risk to the public's health.

#### **Evidence-based Health Risks of EMFs**

There is no scientific literature on the health risks of SmartMeters in particular as they are a new technology. However, there is a large body of research on the health risks of EMFs. Much of the data is concentrated on cell phone usage and as SmartMeters occupy the same energy spectrum as cell phones and depending on conditions, can exceed the whole body radiation exposure of cell phones (see Attachment B1, Figure 4). In terms of health risks, the causal factor under study is RF radiation whether it be from cell phones, Wi-Fi routers, cordless phones, or SmartMeters. Therefore all available, peer-reviewed, scientific research data can be extrapolated to apply to SmartMeters, taking into consideration the magnitude and the intensity of the exposure.

Since the mid-1990's the use of cellular and wireless devices has increased exponentially exposing the public to massively increased levels of RF. There is however, debate regarding the health risks posed to the public given these increased levels of radiation. It must be noted that there is little basic science funding for this type of research and it is largely funded by industry.. An intriguing divide, noted by Genuis, 2011 is that most

research carried out by independent non-government or non-industry affiliated researchers suggests potentially serious effects from many non-ionizing radiation exposures; most research carried out by independent non-government or non-industry affiliated researchers suggests potentially serious effects from many non-ionizing radiation exposures research funded by industry and some governments seems to cast doubt on the potential for harm. Elements of the controversy stem from inability to replicate findings consistently in laboratory animal studies. However, analysis of many of the conflicting studies is not valid as the methodology used is not comparable. Despite this controversy, evidence is accumulating on the results of exposure to RF at non-thermal levels including increased permeability of the blood-brain barrier in the head (Eberhardt, 2008), harmful effects on sperm, double strand breaks in DNA which could lead to cancer genesis (Phillips, 2011), stress gene activation indicating an exposure to a toxin (Blank, 2011), and alterations in brain glucose metabolism (Volkow, 2011).

In terms of meta-analyzed epidemiological studies, all case-control epidemiological studies covering >10 years of cell phone use have reported an increased risk of brain tumors from the use of mobile phones (Hallberg, 2011). Other studies have pointed to an increasing risk of acoustic neuroma, salivary gland tumors, and eye cancer after several years of cell phone use and the tumors occur predominantly on the same side of the head as the phone is used. The analysis of brain cancer statistics since the mid 20<sup>th</sup> century in several countries reveals that brain tumor formation has a long latency time, an average of over 30 years to develop from initial damage.(Hallberg, 2011). Therefore using studies such as the Interphone Study which looked at shorter latency periods for the development of specific brain cancers will result in inconclusive data.

Another potential health risk related to EMF exposure, whose legitimacy as a phenomenon remains contentious, is electromagnetic hypersensitivity (EHS). In the 1950's, various centers in Eastern Europe began to describe and treat thousands of workers, generally employed in jobs involving microwave transmission. The afflicted individuals often presented with symptoms such as headaches, weakness, sleep disturbance, emotional instability, dizziness, memory impairment, fatigue, and heart palpitations. Clinical research to verify the physiological nature of this condition did not begin in earnest until the 1990's and found that the EMF involved was usually within the non-ionizing range of the electromagnetic spectrum. In the early 2000's, estimates of the occurrence of EHS began to swell with studies estimating the prevalence of this condition to be about 1.5% of the population of Sweden (Hilleert et al., 2002), 3.2% in California (Levallios et al., 2002), and 8% in Germany (infas Institut fur angewandte Sozialwissenschaft GmbH, 2003).

In 2004, WHO declared EHS "a phenomenon where individuals experience adverse health effect while using or being in the vicinity of devices emanating electric, magnetic, or electromagnetic fields (EMFs)...Whatever its cause, EHS is a real and sometimes debilitating problem for the affected persons (Mild et al., 2004)."

Currently, research has demonstrated objective evidence to support the EHS diagnosis, defining pathophysiological mechanisms including immune dysregulation in vitro, with

increased production of selected cytokines and disruption and dysregulation of catecholamine physiology (Genuis, 2011).

Until recently, the diagnosis of EHS has not received much support from the medical community due to lack of objective evidence. In an effort to determine the legitimacy of EHS as a neurological disorder, however, a collection of scientists and physicians recently conducted a double-blinded research study that concluded that "EMF hypersensitivity can occur as a bona fide environmentally-inducible neurological syndrome (McCarty et al., 2011).

### **Safety Guidelines**

The guidelines currently used by the FCC were adopted in 1996, are thermally based, and are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock. FCC guidelines have a much lower certainty of safety than standards. Meeting the current FCC guidelines only assures that one should not have heat damage from SmartMeter exposure. It says nothing about safety from the risk of many chronic diseases that the public is most concerned about such as cancer, miscarriage, birth defects, semen quality, autoimmune diseases, etc. Therefore, when it comes to nonthermal effects of RF, FCC guidelines are irrelevant and cannot be used for any claims of SmartMeter safety unless heat damage is involved (Li, 2011).

There are no current, relevant public safety standards for pulsed RF involving chronic exposure of the public, nor of sensitive populations, nor of people with metal and medical implants that can be affected both by localized heating and by electromagnetic interference (EMI) for medical wireless implanted devices. Many other countries (9) have significantly lower RF/MW exposure standards ranging from 0.001 to 50  $\mu\text{W}/\text{cm}^2$  as compared with the US guideline of 200-1000  $\mu\text{W}/\text{cm}^2$ . Note that these recommended levels are considerably lower than the approximately 600  $\mu\text{W}/\text{cm}^2$ . (time-averaged) allowed for the RFR from SmartMeters operating in the low 900 MHz band mandated by the FCC based on only thermal consideration.

In summary, there is no scientific data to determine if there is a safe RF exposure level regarding its non-thermal effects. The question for governmental agencies is that given the uncertainty of safety, the evidence of existing and potential harm, should we err on the side of safety and take the precautionary avoidance measures? The two unique features of SmartMeter exposure are: 1) universal exposure thus far because of mandatory installation ensuring that virtually every household is exposed; 2) involuntary exposure whether one has a SmartMeter on their home or not due to the already ubiquitous saturation of installation in Santa Cruz County. Governmental agencies for protecting public health and safety should be much more vigilant towards involuntary environmental exposures because governmental agencies are the only defense against such involuntary exposure. Examples of actions that the public might take to limit exposure to electromagnetic radiation can be found in Attachment B2.

**References:**

- Balmori, A. "Electromagnetic Pollution from Phone Masts. Effects of Wildlife." Pathophysiology (2009).
- Blackman, C. "Cell Phone Radiation: Evidence from ELF and RF studies supporting more inclusive risk identification assessment,." Pathophysiology (2009): doi: 10.1016.
- . "Cell Phone Radiation: Evidence from ELF and RF Studies Supporting More Inclusive Risk Identification Assessment." Pathophysiology (2009).
- Blank, M, Goodman R. "Electromagnetic field stress living cells." Pathophysiology (2009): doi: 10.1016.
- Blank, M. "Prefice." Pathophysiology (2009): doi10.1016.
- Carpenter, D. and Sage, C. "BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields." (2007).
- Carpenter, David O. "Electromagnetic Fields and Cancer: The Cost of Doing Nothing." (2009).
- Carpenter, David O. " Report on the CCST document "Health Impacts of Radiofrequency from Smart Meters"." (n.d.).
- Carpenter, David O. Sage Cindy. "Setting Prudent Public Health Policy for Electromagnetic Field Exposures." Reviews on Environmental Health (2008): Vol. 23 No.2 .
- Consultants, Sage Associates - Environmental. "Assesments of Radiofrequency Microwave Radiation Emmissions from SmartMeters." (2011).
- Davanipour, E. Sobel. "Long Term Exposure to magnetic fields and the risks of Alzheimer's disease and breast cancer." Pathophysiology (2009): doi: 10.1016.
- De-Kun Li, MD PhD MPH. "Repsonse to CCST." Written Testimony (2009).
- Genuis SJ, Lipp CT. "Electromagnetic Sensitivity: Fact or Fiction?" Sci total Environ (2011): doi: 10.1016.
- Goldworthy, Andrew. "The Biological Effect of Weak Electronmagnetic Fields." (2007).
- Hallberg O, and Morgan J. "The Potential Impact of Mobile Phone Use on trends in Brain and CNS Tumors." Neuro and Neurophysiology (2011).
- Hallberg, O et. al.,. "Apparent decreases in Swedish Public Health indicators after 1997-Are they due to improved diagnostic or environmental factors?" Pathophysiology (2009): doi: 10.1016.
- Hankin, Norbert EPA. "Response to Janet Newton EMR Network re: Radiofrequency Guidelines." (2002).
- Hardell, L. et al.,. "Epidemiological evidence for an association between use of wireless phones and tumor diseases." Pathophysiology (2009): doi: 10.1016.
- Hillert, L et al.,. "Prevalence of self-reported hypersensitivity to electric or magnetic fields in a population-based questionnaire survey." Scab J Work Environ Health 28 (2002): 33-41.

- Hirsch, Daniel. "Comments on the Draft Report by the Council on Science and Technology "Health Impacts of Radio frequency from Smart Meters"." (2011).
- Hondou, Tsuyoshi. "Passive exposure to Mobile Phones: Enhancement of Intensity by Reflection." (2006).
- Huttunen, P. et al., "FM-radio and TV tower signals can cause spontaneous hand movements near moving RF reflector." Pathophysiology (2009): doi: 10.1016.
- Infas. "Study on concern and anxiety of the general public with respect to the possible risks due to high frequency electromagnetic fields used." (2004).
- Johannsson, Ollie Professor Dept of Neuroscience, Karolinksa Institute Stockholm, Sweden. "Commentary." (2011).
- Khurana, Vini G. et al., "Cell phones and brain tumors: A review including the long-term epidemiologic data." Science Direct, Surgical Direct, Surgical Neurology (2009).
- Kreutzer, Rick CDPH. "Technical Commentary on CCST Report: Health Impact on Radio Frequencies from SmartMeters." (2011).
- Kundi, M., Hutter MP. "Mobile Phone base stations-Effects on wellbeing and health." Pathophysiology (2009): doi:10.1016.
- Lai, Henry Dept. of Bioengineering Univ. Of Washington. "Biological Effects of Radiofrequency Radion." (2002).
- Levallois, P and et al. "Study of self-reported hypersensitivity to electromagnetic fields in California." Environ Health Perspect (2002): 110 (Suppl 4); 619-23.
- Levis, Angelo G. et al. "Mobile phones and head tumors. The discrepancies in cause-effect relationships in the epidemiological studies-how do they arise?" Environmental Health (2011).
- Lotz, W. Gregory. "Letter to Richard Tell in support of RF exposure guidelines." (n.d.): 1999.
- Maret, Dr. Karl. "Commentary on the CCST report " Health Impacts of Radio Frequency from Smart Meters"." (2011).
- Mauer, Sandy EMF Network. "PG&E SmartMeters violate FCC RF Exposure Complinance Rates." (2010).
- McCarty, DE et al.,. "Electromagnetic hypersensitivity: Evidence for a novel neurological syndrome." Int. J Neurosci (2011).
- Mekaya, MA et al., Dept of Biophysics University Anakara, Turkey. "Pulse modulated 900 Mhz radiation induces hypothyroidism and apoptosis in thyroid cells: a light, electron microscopy and immunohistochemical study." (2010).
- Mild, Kjell Hansson and Emilie van Dventer Paolo Ravazzani editors Mike Repacholi. "Electromagnetic Hypersensitivity - Proceedings International Workshop of EMF Hypersensitivity Prague, Czech Republic ." (2004).
- Neutra, Dr. Raymond Richard. "Commentary." (2011).
- Organization, Word Health. "IARC Classifies radiofrequency electromagnetic fields as possible carcinogenic to humans." (2011).

Organization, World Health. "Electromagnetic fields and public health: Base stations and wireless technologies." Fact Sheet 304 Accessed on January 31, 2011 (2006):  
<http://www.who.int/mediacentre/factsheets/fs304/enIndex/Html>.  
— "Electromagnetic fields and public health: Electromagnetic hypersensitivity." Fact Sheet No. 296 (2011):  
<http://who.who.int/mediacentre/factsheets/fs296/index.html>.  
— "Interphone study reports on mobile phone use and brain cancer." (2010).  
Peevey, Michael. "Ruling and Scoping Memo to PUC: Opt out program and its cost." (2011).  
Phillips J.L. et al. "Electromagnetic fields and DNA damage." Pathophysiology (2009): doi: 10.1016.  
Pourlis, A.F. "Reproductive and developmental effects of EMF in vertebrate models." Pathophysiology (2009): doi: 10.1016.  
Sage, C and Carpenter D. O. "Public health implications of wireless technologies." Pathophysiology (2011): 16: 233-246.  
Schüz, Joachim et., al. "Cellular Phones and the Risks of Glioma and Meningioma." American Journal of Epidemiology (2006): doi: 10.1093 .  
Supervisors, Santa Cruz county Board of. "Temporary Moratorium on the Installation of SmartMeters." (2011).  
Techology, California Council on Science and. "Health Impact of Radio Frequency Exposure from Smart Meters." (2011).  
Tell, richard. "Summary Discussion of RF Fields and the PG&E SmartMeter System (2005 report and 2008 report)." (2009).  
Volkow, N. D et al.,. "Effects of cell phone radiofrequency signal exposure on brain glucose metabolism." JAMA (2011): 305:808-13.  
Yakemenko, I et al.,. "Long Term Exposure to Microwaves Provokes Cancer Growth: Evidences from Radar and Mobile Communications systems." Experiemental Oncology (2011).

Figure 4 from Hirsch; 2011

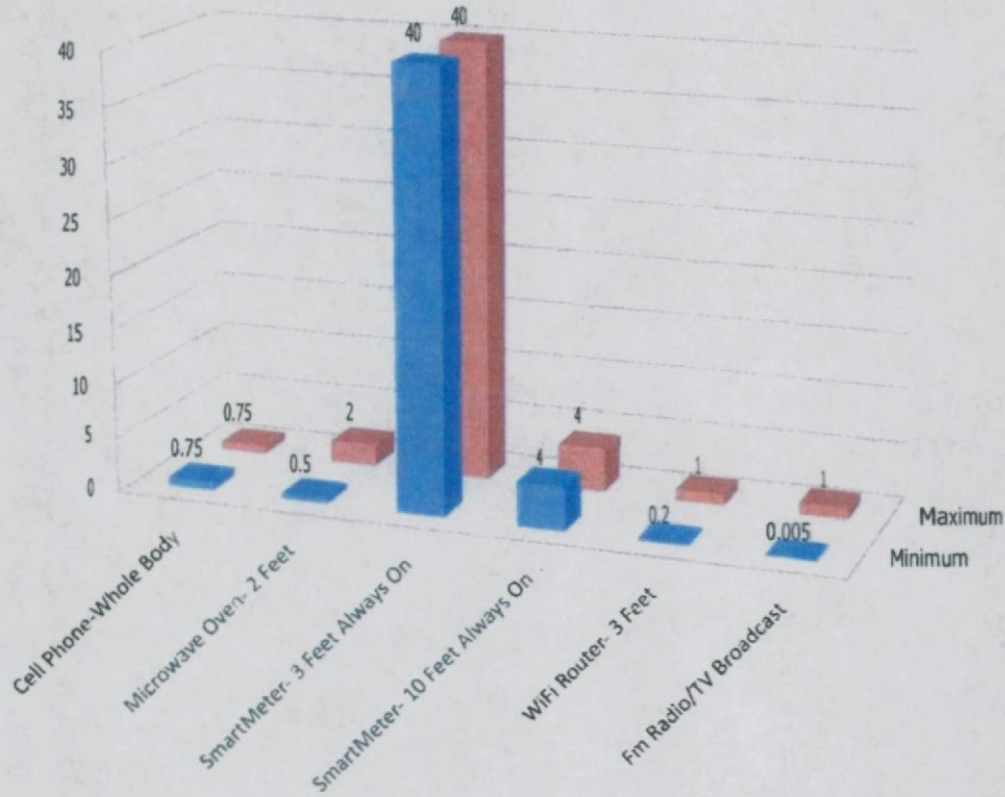


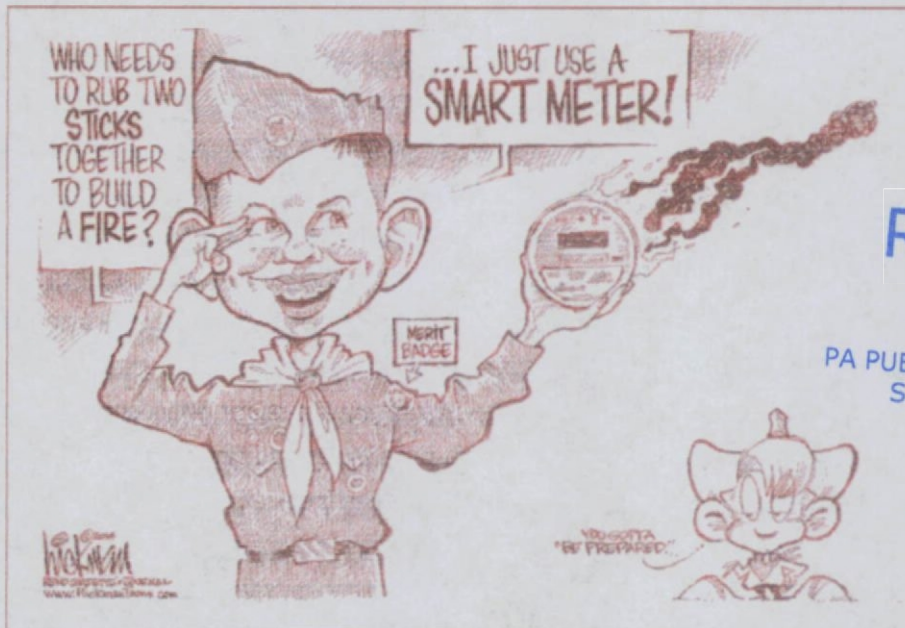
Figure 4. Comparison of Radio-Frequency Levels to the Whole Body from Various Sources in  $\mu$  W/cm<sup>2</sup> over time [corrected for assumed duty cycle and whole body exposure extrapolated from EPRI/CCST SmartMeter estimated levels at 3 feet].

Examples of strategies to reduce electromagnetic radiation.

(Genuis SJ, 2011)

Sources of adverse EMR	Considerations to reduce EMR exposure
Cell phones and cordless phones	<ul style="list-style-type: none"> <li>• Minimize use of cell and cordless phones and use speaker phones when possible</li> <li>• Leave cell or cordless phone away from the body rather than in pocket or attached at the hip.</li> </ul>
Wireless internet	<ul style="list-style-type: none"> <li>• Use wired internet</li> <li>• Turn off the internet router when not in use (e.g. night-time)</li> <li>• Use power line network kits to achieve internet access by using existing wiring and avoiding wireless emissions.</li> </ul>
Computers releasing high EMR	<ul style="list-style-type: none"> <li>• Limit the amount of time spent working on a computer</li> <li>• Avoid setting a laptop computer on the lap</li> <li>• Increase the distance from the transformer.</li> <li>• Stay a reasonable distance away from the computer</li> </ul>
Handheld electronics (electric toothbrush, hair dryer, Smart phone, electronic tablets, etc.)	<ul style="list-style-type: none"> <li>• Limit the use of electronics and/or revert to using power-free devices</li> <li>• Turn devices off before going to sleep</li> <li>• Minimize electronics in bedrooms</li> </ul>
Fluorescent lights	<ul style="list-style-type: none"> <li>• Consider using alternate lighting such as incandescent (Uncertainty exists about the safety of LED lights)</li> <li>• Rely on natural sunlight for reading</li> </ul>
Household power	<ul style="list-style-type: none"> <li>• Measure levels of EMR and modify exposures as possible</li> <li>• Avoid sleeping near sites of elevated EMR</li> <li>• Filters can be used to mitigate dirty power</li> </ul>
High voltage power lines substations, transmission towers, and emitters (cell phone tower, radar, etc.)	<ul style="list-style-type: none"> <li>• Consider relocating to an area not in close proximity to high voltage power lines</li> <li>• Maintain considerable distance from emitters</li> <li>• Consider forms of shielding (shielding paints; grounded metal sheets)</li> </ul>
Utility neutral-to-ground bonded to water pipes	<ul style="list-style-type: none"> <li>• Increase size of neutral-wire to substation and install dielectric coupling in water pipe.</li> </ul>

# Summary of Evidence on Smart Meter Fires



RECEIVED

APR 19 2018

PA PUBLIC UTILITY COMMISSION  
SECRETARY'S BUREAU

**In California and around world, smart meters have been linked to fires, explosions, and damaged appliances. For every fire started at the meter, in an appliance, or on wiring, smart meter causality should be suspected.**

In 2012 a Pacific Gas and Electric (PG&E) whistleblower Pat Wrigley, who worked as a meter reader for 9 1/2 years testified at California Public Utilities Commission judicial hearing:

- **Smart meters cause fires**
  - **PG&E is covering up the risk**
- <https://youtu.be/EnxloltNUek>



Matt Beckett, a California fire department captain stated, "Two years ago PG&E replaced that meter [analog] with a "Smart Meter". Immediately following we noticed power surges in the form of our refrigerator motor intermittently speeding up simultaneously with our lights becoming brighter. As a seventeen year veteran and current Fire Captain this caused me to become very concerned." The Smart meter on his house was replaced with an analog, and there were no problems, until a new Smart Meter was reinstalled. This time he had two surge protectors burn out. <http://emfsafetynetwork.org/fire-captain-finds-hazardous-power-surges-follow-smart-meter-installations/>

Another California fire captain, Ross writes, "I was at home doing yard work in the late afternoon when my wife came outside and told me that "half the power was off again". This had been happening on and off for about two weeks ... I then went outside to

where my meter was and I could instantly smell the burnt electrical smoke. As I was looking at the meter I inadvertently placed my hand on the meter itself and almost burned my hand...the metal box into which all the home's wiring from the meter is stored was also too hot to touch with a bare hand." <http://emfsafetynetwork.org/smart-meter-arcng/>

**California Public Utilities Commission, and PG&E's response**

**In 2009 PG&E reported to the California Public Utilities Commission (CPUC) smart meters interfered with AFCI's and GFI's** "During the second quarter of 2009, PG&E discovered a limited number of cases of SmartMeter™ radio interference with customer electronics, including ground fault circuit interrupters (GFCI) and arc fault circuit interrupters (AFCI). Pages 6-7 Advanced Metering Infrastructure; January 2010 Semi-Annual Assessment Report and SmartMeter™[http://emfsafetynetwork.org/wp-content/uploads/2010/03/Updated-Semi-Annual-AMI-Report\\_Jan\\_2010-12.pdf](http://emfsafetynetwork.org/wp-content/uploads/2010/03/Updated-Semi-Annual-AMI-Report_Jan_2010-12.pdf)

**January 2011:** PG&E, The Utility Reform Network, CPUC Office of Ratepayer Advocates, California Energy Commission, CPUC Energy Division and others discussed "smart meter incidences involving fires..." Meeting agenda: [http://emfsafetynetwork.org/wp-content/uploads/2016/01/TAP-Agenda-1282011-inc-smart-meter-fires-SB\\_GTS\\_0652075.pdf](http://emfsafetynetwork.org/wp-content/uploads/2016/01/TAP-Agenda-1282011-inc-smart-meter-fires-SB_GTS_0652075.pdf)

2.	Provide insight (incident rates) on TURN-identified issues: smartmeter incidences involving fires and electrical shorts; interference (900MHz, garage and consumer devices) and 'dead sockets' (Dec meeting)	Jim Meadows	January meeting
----	--	-------------	-----------------

**2013: PG&E Data Response on smart meter fires.** <http://emfsafetynetwork.org/wp-content/uploads/2010/03/Data-Response-PGE-smart-meter-fires.pdf> Much of the document is redacted, and PG&E states, "In no instance has PG&E found that a SmartMeter™, either gas or electric, has caused a fire." However, PG&E now monitors temperature and voltage readings of smart meters for hazardous conditions. "PG&E issues field orders to perform safety inspections at potentially overloaded and or high temperature sites. **The data has led to panel inspections at customer premises that have found undersized wiring, physical panel damage, and overloaded conditions.**"

**The CPUC is charged with overseeing utility safety.** In the CPUC's Annual Report to the Governor and the Legislature May 2014, they state, "There was some concern regarding fires in smart meters but this was investigated by CPUC staff in 2013. Staff determined that, of reported fires involving smart meter installation, none were actually caused by the smart meter." (p.5) **EMF Safety Network sent a records act request in December 2014 for the details of that investigation, however the CPUC has not provided any details.** <http://emfsafetynetwork.org/wp-content/uploads/2016/01/Smart-Grid-Annual-Report-2013-.pdf>

## Smart meter fires, surges, exploding meters, and damaged appliances in California and around the world



**Bakersfield, California, Smart Meter Blows Up At Business** (2009): *"employees at Henry M.M. Engines said their Smart Meter caught fire, which sparked concern and questioned the safety of these new meters. On Wednesday, a PG&E technician was called out to replace the meter after employees found the device burned up and lying on the ground." "Basically it was an explosion. I saw the meter on the ground and the face plate was blew off and the whole meter was blackened. Even the breaker box that housed the meter was blackened by what*

*seemed to be an electrical short," said Vernon Nelson, an employee."* <http://www.turnto23.com/news/your-neighborhood/north-river-county/smart-meter-blows-up-at-business>

**Berkeley California Fire Department report** (2010) states, *"Investigation revealed the newly installed PG&E Smart Meter in the kitchen was hot to touch and smoking, with a orange glow inside the meter housing"* <http://emfsafetynetwork.org/wp-content/uploads/2010/07/Berkeley-Smart-Meter-Fire.pdf>



**Stockton California** (2015): Dozens of smart meters exploded and caught fire after an electrical surge cut power to about 5800 homes near Stockton CA. CBS News reports, *"A power surge left thousands without power for most of the day in Stockton after smart meters on their homes exploded on Monday." "Neighbors in the South Stockton area described it as a large pop, a bomb going off, and strong enough to shake a*

*house."* <http://emfsafetynetwork.org/dozens-of-smart-meters-explode-from-power-surge/>

**Santa Rosa, California** (2011): *Three smart meters explode at a shopping mall.* According to the incident report from the Santa Rosa Fire Department firefighters found the electrical room at the Santa Rosa Mall "charged with smoke" and *"upon investigation found 3 PG&E meters that had blown off the electrical panel causing damage to the interior wiring of the electrical panel. A fire was still smoldering..."* <http://emfsafetynetwork.org/3-pge-smart-meters-explode-at-santa-rosa-mall/>

**Palo Alto (2011):** 80 PG&E smart meters caught on fire and burned out after a power surge. The incident raised questions for residents and utilities officials about smart meter safety. "Mindy Spatt, communications director for The Utility Reform Network (TURN), said the utility-consumer advocacy group received many complaints about surges damaging appliances when the SmartMeters were first installed. Comparing analog to the new meters, she added, "In the collective memory of TURN, we have not seen similar incidents with analog meters." <http://www.paloaltoonline.com/news/2011/09/04/power-surge-raises-questions-about-smartmeters>

**Power mishap damages appliances for Livermore residents (2012):** 28 smart meters were replaced by PG&E when a power line replacement caused a power surge which fried appliances, TVs and air conditioners. "The surge of electricity ripped through 28 homes on Hudson Way in Livermore." <http://abc7news.com/archive/8770840/>

**Nevada (2014):** Reno and Sparks fire chiefs call for smart meter fire investigation, "in the wake of a troubling spate of blazes they believe are associated with the meters, including one recent fire that killed a 61-year-old woman." <http://www.rgj.com/story/news/2014/09/13/reno-sparks-fire-chiefs-call-smart-meter-probe/15580069/>

**Florida, News Investigative report (2011):** "I went over to the FPL meter and it had caught on fire, it was all black smoke and charred," <http://www.wptv.com/news/region-c-palm-beach-county/some-homeowners-concerned-about-meter-installation#ixzz1d3MvQ4r5>

**Chicago Illinois (2012):** 2012 ComEd confirms smart meter fires. [http://articles.chicagotribune.com/2012-08-30/business/chi-comed-confirms-smart-meters-involved-in-small-fires--20120830\\_1\\_smart-meters-comed-customers-poor-connection](http://articles.chicagotribune.com/2012-08-30/business/chi-comed-confirms-smart-meters-involved-in-small-fires--20120830_1_smart-meters-comed-customers-poor-connection)



**Philadelphia Pennsylvania (2012):** utility PECO suspended smart meter installation due to fires. <https://youtu.be/g8nwrRchtuk>

**Texas (2012):** Customers of Centerpoint report smart meter fires. <http://www.khou.com/story/news/2014/07/21/11803806/>



Oncor Changing Smart Meter Installation After Fires  
« CBS Dallas / Fort Worth: *"The Chief Executive Officer of Oncor says the company has a new procedure for installation of smart meters after two house fires in Arlington last week. Robert Shapard says **old wiring in two homes could not support the new smart meters.**"*

<http://dfw.cbslocal.com/2010/08/24/oncor-changing-smart-meter-installation-after-fires/>

**Canada:** Nanaimo mother of two left without power for two days after smart meter smoked and caused a power outage <https://youtu.be/9NO6wIx8UFc>

**New Zealand:** Fire Prone Meter boxes causing concern. *"Front line firefighters are concerned about the number of household power meter boxes that are bursting into flames. There have been 67 callouts in Christchurch to electrical malfunctions so far this year, and new smart meters have*

*been involved in three in the last five days."* <http://www.3news.co.nz/nznews/fireprone-meter-boxes-causing-concern-2010060317#axzz3vYE7LXcr>

#### **Australia:**

- **"Smart Meter Disaster"** is a 2012 Australian TV news report on smart meter hazards, including fires. [https://youtu.be/4e71qAr\\_qGk](https://youtu.be/4e71qAr_qGk)
- **Smart meter shock: electrical hazards found in 3500 homes** "Victoria's energy regulator has conceded smart meter contractors might lack required skills and is reviewing the qualifications of workers rolling out the \$2 billion scheme." "smart meter installers have identified dangerous and possibly life-threatening electrical hazards in 3500 Victorian homes." [http://www.theage.com.au/victoria/smart-meter-shock-electrical-hazards-found-in-3500-homes-20110212-1are0.html?from=age\\_sb](http://www.theage.com.au/victoria/smart-meter-shock-electrical-hazards-found-in-3500-homes-20110212-1are0.html?from=age_sb)
- **Smart meter blasts covered up 2012:** A whistleblower claims power companies know smart meters are exploding and are lying to consumers to cover it up. 'John' works for Jemena and claims at least six smart meters have exploded in and around Pascoe Vale, since Christmas. John was installing a meter yesterday which burst into flames in front of him. He's told Neil Mitchell under strict anonymity power companies are misleading the public and smart meters are dangerous. <http://www.3aw.com.au/blogs/breaking-news-blog/smart-meter-blasts-covered-up/20120222-1tmqr.html>

## Thousands of smart meters replaced due to fire risk

- Portland General Electric Oregon replaced 70,000 smart meters due to fire risk. [http://www.oregonlive.com/business/index.ssf/2014/07/pge\\_replacing\\_some\\_electricity.html](http://www.oregonlive.com/business/index.ssf/2014/07/pge_replacing_some_electricity.html)
- Lakeland Florida replaced 10,657 smart meters due to fire risk: <http://www.theledger.com/article/20140826/NEWS/140829388/1410?Title=Overheating-Concerns-Lakeland-Electric-to-Replace-10-657-Residential-Smart-Meters->
- In Canada SaskPower replaces 105,000 smart meters due to fire risk. <http://www.cbc.ca/news/canada/saskatchewan/saskpower-to-remove-105-000-smart-meters-following-fires-1.2723046>
- Ontario, Canada Thousands of smart meters in Ontario to be removed over safety worries: "Some 5,400 of Ontario's 4.8 million smart meters are being removed and replaced because of a risk they could heat up, cause an electrical short and possibly spark a fire." <http://www.thestar.com/news/queenspark/2015/01/22/thousands-of-smart-meters-in-ontario-to-be-removed-over-safety-worries.html>

### Industry and expert commentary



IEEE [professional technological association]: "Obviously all companies with smart meter programs, and all their suppliers and sub-contractors, are going to have to take a close look at the issue of fire hazards. This is just the beginning of a difficult story." <http://spectrum.ieee.org/energywise/energy/the-smarter-grid/smart-meter-fire-reports>

TESCO: According to research by TESCO smart meters are more prone to "hot socket" than analog meters. Failure modes include catastrophic (expected) "Catastrophic failure" is defined as "a meter which has burnt, melted, blackened, caught fire,

arced, sparked, or exploded." See: "<http://smartgridawareness.org/2015/11/03/catastrophic-failures-expected-with-smart-meters/> See also: <http://emfsafetynetwork.org/wp-content/uploads/2010/03/TESCO-Lawton-on-Hot-Sockets.pdf>

**Wireless Smart Meters and Potential for Electrical Fires.** Commentary by Cindy Sage, Sage Associates and James J. Biergiel, EMF Electrical Consultant July 2010: Smart meters can create an over-current condition on the wiring and produce heat, which the neutral cannot properly handle, which can lead to fires.

- "The use of smart meters will place an entirely new and significantly increased burden on existing electrical wiring because of the very short, very high intensity wireless emissions (radio frequency bursts) that the meters produce to signal the utility about energy usage."
- "The location of the fire does NOT have to be in close proximity to the main electrical panel where the smart meter is installed."
- "A forensic team investigating any electrical fire should now be looking for connections

to smart meters as a possible contributing factor to fires.”

- <http://emfsafetynetwork.org/wp-content/uploads/2011/06/Smart-Meters-Risk-for-fire.pdf>

**Ontario Fire Marshall Report:** “During our initial research of the new meters we encountered an unusual amount of fire incidents involving smart meters. “Anecdotal information supported [the fact that] problems occurred after the old analog meters were updated to the new digital smart meters.” The report noted the possibility of a fire resulting from “a loose connection in the meter base.”

“What could be the reason for this? The old meter base connections may not have been in a condition for seamless exchange to a new meter. New meters may have defects that cause electrical failures or misalignment with old meter base. Careless installation during changeover.”

<http://www.oafc.on.ca/article/unusual-number-fires-smart-meters-linked-ontario-fire-marshall-says-faulty-base-plates-could>

**American Electric Power (AEP) How hot are your meters? 2015:** “Today’s meters are light. The old ones were heavy and dissipated heat a lot better, actually,” said Ken Dimpfl, of American Electric Power (AEP). In 2010, they started seeing smart meter failures due to high temps or thermal overload. “This began our journey of looking at ‘hot sockets,’” Dimpfl said. “Over the course of a two-year period, AEP analyzed roughly 25 meters that failed. Post event analysis concluded that the root cause was a poor connection at the meter.”

<http://www.intelligentutility.com/article/15/10/how-hot-are-your-meters>

**Hydro Quebec requires 3 meters distance between a smart meter and gas tank**

<http://ofsys.hydroquebec.com/T/OFSYS/SM2/2/S/F/4947/13087532/Dnm3qyNW.html>

**Norm Lambe, an insurance claims adjustor, contends the utility companies are tampering with the evidence by immediately removing smart meters when there’s a fire.** “A dangerous precedent is being followed in the insurance industry concerning the investigation of smart meter fires...When the local electrical utility arrives and determines that a smart meter is the issue, they have been removing the meter, and preventing the inspection of the meter by the experts... This is a serious situation, as the utility company, upon removal of the meter is tampering with what is evidence concerning the cause of the fire and can be held criminally responsible.” <http://www.examiner.com/article/are-insurance-companies-avoiding-the-smart-meter-problem>



*Summary of Evidence on Smart Meter Fires compiled by Sandi Maurer, EMF Safety Network Director, January 2015. Sandi Maurer has intervened on smart meter proceedings at the CPUC since 2010. See also EMF Safety Network Smart Meter Fires and Explosions: <http://emfsafetynetwork.org/smart-meters/smart-meter-fires-and-explosions/>*

WRITE FIRMLY WITH BALL POINT PEN ON HARD SURFACE TO MAKE ALL COPIES LEGIBLE.

CUSTOMER USE ONLY

FROM: (PLEASE PRINT)

PHONE (501) 733-7166

Susan J. Lambert  
638 Bank Street  
Bridgeville, PA 15017

PAYMENT BY ACCOUNT (if applicable)

DELIVERY OPTIONS (Customer Use Only)

SIGNATURE REQUIRED Note: The mailer must check the "Signature Required" box if the mailer: 1) Requires the addressee's signature; OR 2) Purchases additional insurance; OR 3) Purchases COD service; OR 4) Purchases Return Receipt service. If the box is not checked, the Postal Service will leave the item in the addressee's mail receptacle or other secure location without attempting to obtain the addressee's signature on delivery.

Delivery Options

- No Saturday Delivery (delivered next business day)
  - Sunday/Holiday Delivery Required (additional fee, where available\*)
  - 10:30 AM Delivery Required (additional fee, where available\*)
- \*Refer to USPS.com® or local Post Office™ for availability.

TO: (PLEASE PRINT)

PHONE

Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Bldg  
P.O. Box 3265  
Harrisburg, PA 17105-3265

ZIP + 4® (U.S. ADDRESSES ONLY)

1 7105-3265

- For pickup or USPS Tracking™, visit USPS.com or call 800-222-1811.
- \$100.00 insurance included.



EL847678030US

INTERNATIONAL USE



PRIORITY MAIL EXPRESS™

ORIGIN (POSTAL SERVICE USE ONLY)

- 1-Day       2-Day       Military       DPO

PO ZIP Code 15017	Scheduled Delivery Date (MM/DD/YY) 4/20/18	Postage \$ 24.70
Date Accepted (MM/DD/YY) 4/19/18	Scheduled Delivery Time <input type="checkbox"/> 10:30 AM <input type="checkbox"/> 3:00 PM <input checked="" type="checkbox"/> 12 NOON	Insurance Fee \$
		COD Fee \$

Time A 2

Specie

\$

Weight

DEL

Deliv

Deliv

External Carrier: EXPRESS

8/20/2018 10:18:41 AM



CMPC

To: CHIAVETA, R. PUC

Agency: PUC

Floor:

External Carrier: EXPRESS



EL847678030US