To: WUTC Policy Makers for Smart Meter Programs
Docket # U-180525
Title: So called "Smart"/AMI Meters are a mistake: Time to simply reject them as many other state utility commissions have already done.

Date: January 28, 2019

I am very encouraged by the recent trend in Utility Commissions across the country waking up to the fact that the so called "smart" meters aren't such a smart idea after all. Some of the state Utility Commissions that have simply rejected the whole infrastructure investment of AMI(Advanced Metering Infrastructure…will no longer here refer to them as "smart") meters include: Virgina (just this month!)New Mexico ,Kentucky, and Massachusetts . In our state some of the PUD's including Port Angeles and Port Townsend have already outright rejected AMI Meters entirely.

There just is not a good enough reason to switch to them…simple cost benefit analysis does not pencil out! The health concerns are major; but even if one just puts them aside because it's easy to find industry funded justification/studies to defend them, they just are not worth the major infrastructure investment!

Public outcry will continue to be a growing issue requiring more time and energy on the part of the Commission, Legislators, etc. The state of California has not yet rejected AMI Meters; but so many citizens across the state have become galvanized and created county and city ordinances against the meters. Here is a partial list of the smart meter resistance groups that have been popping up around the nation…because rate payers are not happy!

I have copied a letter from Dr. Richard Conrad, PhD here written to one of these Utility companies 4 years ago because he so clearly articulates 9 reasons why Smart Meters are a mistake and he has an impressive CV: http://www.conradbiologic.com/mycv.html.

It is worth noting that since the time of his writing this document, just this year the 10 year $25 million dollar National Toxicological Program study on the effects of cell phones on rats was finished and peer reviews completed. The verdict is …."clear evidence" that cell phones do cause cancer. The radiation from AMI meters is the same type of wireless radio frequency radiation. The difference is that the AMI meter cannot be turned off like the cell phone can; and, the radiation effects the whole body and the whole neighborhood because of the interconnected web of signaling between AMI meters. Effects are worse when closer and with more AMI meters in a group. But no one is warning people whose bed is on the opposite side of the AMI

meter; or worse, on the opposite side of a bank of them as in a condo or apartment complex. I have a friend who had to quit his job in Silicon Valley and change his entire life because a bank of AMI meters was installed on the other side of his bedroom wall. You can hear his Tedtalk about it here.

Also, I wanted to say I appreciate the sections of the draft rulemaking for AMI Meter infrastructure that clearly have the intent to protect the privacy of citizens and prevent the data collection possibilities available via AMI Meters. It's clear that those writing the draft understand Reason #2 of the 9 reasons given here below!

Thank you for taking the time to read this well referenced thorough argument for simply rejecting AMI Meter installation in Washington State. I sincerely hope that very soon the subject of AMI meter installation can be tabled and your valuable time can be spent on other areas related to your mission of protecting the people of Washington by ensuring that investor-owned utility and transportation services are SAFE, available, reliable and FAIRLY PRICED.

Sincerely,

Laurie Keith, BA, LMT

Langley, Washington 98260

NINE REASONS WHY TODAY'S Smart/Smart METER SYSTEMS ARE A MISTAKE

by Richard H. Conrad, Ph.D. biochemist May 8, 2014 INTRODUCTION

Smart electric meters and smart grid systems track and record details of customers' energy usage, and transmit the information to utilities wirelessly at microwave frequencies. Authorities are attempting to make Smart meters mandatory. They are usually installed without permission and sometimes against the wishes of homeowners. **Smart meters fill homes with pulsed microwave radiation 24/7 without consent, and infringe on the privacy, security, safety and health of residents.**

For the above reasons there is world-wide opposition to Smart meters. Fifty-seven jurisdictions in the US are opposed to mandatory Smart meters. Fifteen jurisdictions in California have made Smart meter installations illegal. More than half of the States in

the US have wireless Smart meter opposition groups. The opposition is growing and is persistent.

The American Academy of Environmental Medicine (AAEM) in a letter to the California Public Utilities Commission (January 2012) called for an immediate moratorium on Smart meter installation and in October 2013 restated their call for a moratorium based on **new scientific evidence that "clearly demonstrates adverse health effects in the human population from Smart meter emissions."** Many experts concur (see References and Notes section).

Safe wired (vs. wireless) alternatives that enhance sustainability and do not infringe on personal rights are technologically feasible right now (see Alternatives at end of References and Notes section) but in most cases are not being offered.

There is an enormous amount of propaganda being disseminated by the Smart meter manufacturers and others that paints a picture far from the truth. **Smart meters cause more problems than they solve. Here is the reality:**

1) NO REAL COST JUSTIFICATION
In January 2014, Northeast Utilities in Massachusetts filed a statement to the Massachusetts Department of Public Utilities which concluded: "There is no rational basis for Smart (Smart meter Advanced Metering Infrastructure).....there is ample evidence that this technology choice will be **unduly costly for customers and that the objectives of grid modernization are achievable with technologies and strategies that rank substantially higher in terms of cost effectiveness**.....the costs associated with Smart are currently astronomical, while the incremental benefits for customers are small in comparison.....**There is no cost justification that can support the implementation of (Smart meters)**.....**consider the results and** experiences of recent and ongoing pilots before blindly moving forward with an Smart mandate".

The Attorney Generals of Illinois, Connecticut and Michigan have independently stated they oppose Smart meters on the basis of high cost and little or no benefit. Smart meters have not been saving consumers money but have caused sky-rocketing utility bills, resulting in class-action lawsuits in California and Texas.

2) INVASION OF PRIVACY RIGHTS
Smart meters relay detailed information about times and amounts of electrical power usage. Energy usage data allows the reconstruction of a household's activities,

including when residents are home or away. Even in the absence of “Smart”/wi-fi transmitting appliances and Zigbee chips, the specific appliances consuming power and their time of consumption can be determined through analysis by special software developed at MIT. (This is for the sole benefit of the utilities; the statement that consumers will make use of an ability to see a running analysis of their consumption is propaganda - most customers are not interested.) One cannot rely on a utility’s claim that they will not release or sell information to other parties. Smart meters are an open portal into every home - an unacceptable intrusion into customers‘ privacy. *A very slippery slope.*

A related invasion of rights is the plan for the utilities to eventually be able to control major household appliances. This will be a serious infringement on freedom within one’s own home; the freedom to use such devices whenever they are needed. It will impose forced limitations on when one can wash dishes, wash or dry clothes, take a hot bath, or run the A/C. *Another very slippery slope.*

3) SUSCEPTIBILITY TO HACKING AND CYBER-TERRORISM
Utilities have not established adequate protections from hacking or for preventing sensitive data from being accessed by unauthorized persons or entities. The FBI, a former CIA director and industry experts have expressed alarm over the hacking and cyber-terrorism potentials of a Smart grid. Smart meter/grid technology **greatly increases vulnerability to cyber-terrorism**. Utilities are not likely to ever be able to effectively defend against these threats - it will be a never-ending risk - an expensive on-going battle with hackers and terrorists.

4) ADVERSE BIOLOGICAL EFFECTS OF MICROWAVE RADIATION
Low level microwave radiation is not innocuous. Thousands of peer-reviewed research publications (Bioinitiative 2012; January 16, 2014) show adverse biological effects from pulsed microwave frequency radiation at exposure levels well below FCC limits; often lower by orders of magnitude and in the range of emissions from Smart meters. (For non-thermal biological effects, peak intensity is more important than averaged power. 24/7 exposure to Smart meter pulses is actually an exposure of the same order of magnitude as using a cell phone for a much shorter time.) Studies have shown detrimental effects of low-level microwave exposure on animals, birds and bees. In animals: reduced fertility and sperm viability, disturbance of immune function, increased numbers of breaks in DNA, breaching of the blood-brain barrier making it more porous to toxins, increased oxidative stress, increased cancer rates and many other effects.

See “Important letters from experts” in References and Notes section. In humans, alterations in brain waves, sleep patterns and heart rates; increased cancer rates. There would be much more known about health effects in humans but funds have been withdrawn for research on non-thermal effects, and non-thermal findings by the EPA have been kept under cover.

5) POSSIBLE HUMAN CARCINOGEN

The World Health Organization’s International Agency for Research on Cancer (IARC) has classified microwave radiation, *specifically including that emitted by Smart meters***,** as a **possible human carcinogen**. This means that in order to continue to receive electrical power, **people are being forced to live with a device on their homes that emits possibly carcinogenic microwaves 24/7**. The results of thousands of studies strongly suggest that microwaves are not safe for humans. At least with cell phones a person has a choice whether or not to use them. **If the Smart meter roll-out plan had been submitted as a proposal for an experiment on human beings, which it undeniably is, any Institutional Review Board, including the division of the NIH that supervises such experiments on humans, would have rejected it outright.** Millions of persons world-wide are being used as guinea pigs without their permission. The Smart meter roll-out violates Nuremberg principles.

6) FCC AND INDUSTRY SPIN

The FCC has never actually said that adherence to their standards is a guarantee of *complete* safety. It is industry spin that has interpreted and proclaimed it this way. The FCC says that their MPE, or Maximum Permissible Exposure level, was selected to protect from the overheating of tissue (this and electric shock are the only hazards of microwave/radio frequencies that the FCC officially recognizes). Their MPE does not protect from short and long-term health effects from lower, non-thermal levels such as emitted by Smart meters, cell phones and Wi-Fi. **Therefore any Smart meter plans or decisions based on the MPE are completely invalid.**

The FCC admits that non-thermal effects do exist and have been reported to effect human EEG and sleep patterns and then goes on to say that biological effects do not necessarily mean harmful health effects in humans and more research is needed; this is akin to saying that **you are using low-level microwave emitting devices at your own risk** (see FCC DOUBLE-SPEAK in References and Notes section).

The many non-thermal effects that have been found (*thousands* of peer-reviewed research papers) should raise red flags, but instead are ignored by our regulatory bodies as if they simply do not exist. Yet Smart meters are becoming obligatory, and PUCs and utilities are basing claims of safety on the FCC's standards. See

REFERENCES AND NOTES section at the end of this document for a description of THE FCC DOGMA).

Environmental Protection Agency (EPA), 1993: The FCC's exposure standards are "seriously flawed." (Official comments to the FCC on guidelines for evaluation of electromagnetic effects of radio frequency radiation, FCC Docket ET 93-62, November 9, 1993.)

Food and Drug Administration (FDA), 1993: "FCC rules do not address the issue of long-term, chronic exposure to RF fields." (Comments of the FDA to the FCC, November 10, 1993.)

National Institute for Occupational Safety and Health (NIOSH), 1994: The FCC's standard is inadequate because it "is based on only one dominant mechanism—adverse health effects caused by body heating." (Comments of NIOSH to the FCC, January 11, 1994.)

Amateur Radio Relay League Bio-Effects Committee, 1994: "The FCC's standard does not protect against non-thermal effects." (Comments of the ARRL Bio-Effects Committee to the FCC, January 7, 1994.)

Environmental Protection Agency (EPA), 2002: Norbert Hankin of the EPA's Office of Air and Radiation, Center for Science and Risk Assessment, Radiation Protection Division, wrote: "The FCC's current (radio frequency/microwave) 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.....the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified.....there are reports that suggest that potentially adverse health effects, such as cancer, may occur.....Federal health and safety agencies have not yet developed policies concerning possible risk from long-term, nonthermal exposures."

The FCC standards were set before, and do not take into consideration, the WHO's IARC decision to classify microwave radiation, including the radiation from Smart meters, as a possible human carcinogen. This is yet another reason why the FCC standards do not protect consumers. **Certainly Smart meters cannot by any stretch of the imagination be considered safe. Any organization that bases claims of "no long or short-term health effects from Smart meters" or "Smart meters are safe" or "Smart meters have been determined to be safe" on the FCC dogma is hiding behind non-existent liability protection.**

Contrary to industry propaganda, the only "testing" of the safety of Smart meters has been their deployment. The only results of this "testing" that have been reported are

survey reports and many personal testimonials of health effects (some of which were accompanied by sworn affidavits) including testimonials from the "Smart Meter Health Effects Survey". See the Survey and its results and testimonials at: (testimonials are in Appendix 6, beginning on page 65): http://www.mainecoalitiontostopSmartmeters.org/wp-content/uploads/2013/01/Exhibit -10-Smart-Meter-Health-Effects-Report-Survey2.pdf

The report from a previous survey: http://www.conradbiologic.com/pdfs/EMSnetwork-Survey-Results-FinalReduced.pdf

Additional testimonials can be read at:

http://www.conradbiologic.com/pdfs/Santa-Rosa-Smart-Meter-Hearings.PDF

Nine countries (including China, Russia and much of Europe) representing 40% of the world's population, have much lower exposure limits than the US; some countries have established guidelines more than 100 times lower. Certainly China and Russia are not known to be overly protective of their populations.

7) MENTAL AND PHYSICAL DEBILITATION

Many people worldwide independently report becoming electrically sensitive for the first time in their lives after a Smart meter was installed, and can no longer tolerate using cell phones or Wi-Fi. It is important to note that in many of these cases, brand new and severe symptoms began to appear days or weeks BEFORE they learned that a Smart meter was nearby (see Survey report). **Therefore effects**

on human functioning are a reality and not paranoia or hysteria. Because of the severity of these symptoms, in many cases people are forced to abandon their homes if utilities refuse, as they sometimes do, to remove the Smart meter.

Once a wireless Smart meter system is in place, there exists a very real potential for the remote reprogramming of pulse patterns emitted by (either all or selected) Smart meters by hackers, terrorists, or by any government in the future. This could be used to purposefully affect a population's (or selected sub-populations') mental and physical functioning. This would be analogous to what the Russians did to the US Embassy in Moscow, and the military knows exactly how to accomplish this. **Smart meters are already inadvertently** having this effect on susceptible persons at their usual low pulse duty cycle of 1% or less (see Survey report). Imagine how much greater the effect would be, and on how many more people, if the duty cycle was raised for example to 50% at the push of a button. A potential weapon of mass debilitation attached to every home. *An extremely slippery slope.*

Exposure to EMF such as that from Smart meters and other sources, rapidly causes painful physical symptoms and disability in a significant percentage of the world's population, whether or not these people can directly "sense" EMF and whether or not they are aware that they are being exposed. This is in spite of junk science sponsored by industry - poorly conducted experiments - that have supposedly "proven" that the symptoms are not caused by EMF exposure. More than any other electronic device, Smart meters have been the cause of persons world-wide being converted from normal, to becoming electrically sensitive, to the point of not being able to use their beloved cell phones or wi-fi any longer (see Survey report). Take note: Smart meters really are disabling people, and the number so disabled is growing rapidly. **This is one of the main reasons that there are over 200 Smart meter opposition groups world-wide.** Many of these health effects are irreversible.

Electrical Sensitivity **(ES) is very real, and it is direct evidence that non-thermal effects do cause serious health problems in humans.** See References and Notes section for a definition and discussion of ES. Even in the general population that has not yet become electrically sensitive, it is very probable that Smart meters are causing subliminal effects on sleep patterns, neuropsychological functioning, leakage of the blood-brain barrier, and increased oxidative damage including DNA breakage. **No official testing has ever been done with Smart meters to look for these effects.**

8) OPT-OUTS NOT SUFFICIENT

Opt-outs are not a satisfactory solution because of cumulative microwave emissions from neighbor's Smart meters and nearby banks of Smart meters. Furthermore, utilities have been charging initial and on-going monthly extra fees to opt-out. The true purpose of these fees is to discourage opting out, not to compensate for manually reading an analogue meter as claimed. (Customers can do this themselves and submit the monthly reading to the utility via the post card system such as has been in effect for years on Oahu or via an automated touch-tone phone system.) **Any demand of extra payment to avoid having privacy, security or health infringed upon within one's own home is, without exaggeration, extortion**, particularly in light of the fact that microwave radiation, including that emitted by Smart meters, is classified by the WHO as a possible human carcinogen.

9) SAFETY AND BENEFITS PROPAGANDA

Utilities and PUCs have been believing, relying on and disseminating the Smart meter "information" supplied to them by the manufacturers of Smart meters and others. This propaganda is riddled with misleading and false statements, and uses FCC dogma as its basis for safety (see NOTES AND REFERENCES for reason 7). Unfortunately the truth is that the FCC, FDA, EPA and other government agencies have been passing the buck around in a circle from one to the next for many years, with none of them releasing their own research results. No one can honestly refute the red flags raised by the enormous body of peer-reviewed research, so agencies use deceptive double-talk and say that the research findings are not significant. They really do have serious safety concerns, but are influenced by pressure from the telecom industry.

Telecom lobbyists manipulate public opinion by making false proclamations through the press. Their chief lobbyist, "fixer" and generator of spin was Tom Wheeler, who is now the Chairman of the FCC - a classic example of the fox guarding the henhouse - hence the public remains without protection from non-thermal effects. Business as usual in Washington, but in this case causing unnecessary death, disability and suffering, lack of optimum productivity, and increased health care costs.

CONCLUSION

Don't take the path of intentional ignorance. Take a lesson from history: the "harmless" X-ray machines in every shoe store, DDT that "only affects insects", malathion "drinkable", asbestos "no effect on humans", thalidomide "no significant side effects",

tobacco “doesn’t cause cancer”, estrogenic plasticizers “parts per billion can’t hurt anyone” - the list goes on and on. Please remember these huge blunders and make decisions accordingly.

Who should one believe, those with vested financial and political interests, or those whose priorities are the prevention of human suffering, maximizing cost benefits to consumers, and consumer security and privacy?

Do not rush ahead based on propaganda and wishful thinking. For the purpose of protecting the pocketbooks, privacy, security, health and safety of consumers, the deployment of Smart meters and their associated systems should be halted until after they are redesigned and the new design is proven secure, safe and financially beneficial for the consumer. (Some possible safe alternatives to wireless Smart meter systems are presented in the References and Notes section.)

An unbiased study on the safety of Smart meter systems as they are currently being deployed:

- would not hide behind the current FCC “safety” limits and would not be influenced by industry propaganda,

- would treat and evaluate the deployment of Smart meters as an experiment on human beings that requires approval by an Institutional Review Board (such as an IRB at a major university) according to the NIH standards for experiments involving human subjects (one of the NIH requirements being prior full disclosure to and the signed consent of each subject),

- would test for subliminal effects in humans, including neuropsychological testing, and monitoring of sleep patterns and EEG (especially QEEG) and EKG before, during and after extensive exposure to actual typical Smart meter emissions, first

at normal duty cycle, and then at maximum duty cycle.

- would honestly take into account:
  i) the thousands of research reports on non-thermal effects,
  ii) the recent classification of microwave emissions including that from Smart meters as a possible human carcinogen,

iii) the unusual symptoms and health effects from Smart meters independently reported by thousands of persons world-wide,

iv) the warnings of the dozens of research scientists who have written about the dangers to human health of Smart meters and other microwave emitting devices,

v) microwave exposure from neighbors' Smart meters and mesh system routers. (Smart meter emissions from the homes of immediate neighbors and also from dozens of surrounding houses all add together to contribute significantly to exposure inside one's home, even when attenuation by walls and building materials is taken into account.)

SUMMARY

1) No real cost justification
2) Invasion of privacy rights
3) Susceptibility to hacking and cyber-terrorism 4) Adverse biological effects
5) Possible human carcinogen
6) FCC and industry spin
7) Mental and physical debilitation
8) Opt-outs not sufficient
9) Safety and benefits propaganda

Any of the above nine reasons should alone be cause enough to halt the deployment of Smart meter systems of the present design. These systems were designed to satisfy perceived desires and needs of utilities, without anticipating that they would be an all-around bad idea for consumers and will end up being an on-going nightmare for the utilities themselves. With these systems: high costs, privacy invasion,

hacking, and harm to humans are not going to go away, but will only get greater and greater. So will the liability consequences. A number of class action lawsuits are already underway.

There are ways to accomplish reasonable utility goals while avoiding negative impacts on consumers and the slippery slopes of intrusion into privacy and personal rights, and the extremely slippery slope of installing a potential weapon of mass debilitation on homes. The only alternatives that are safe and beneficial are wired alternatives that have no wireless features.

Don't follow the mistakes of others down the wrong track, rather, reject the ill-conceived wireless systems currently being deployed elsewhere. Take a stand like Northeast Utilities did recently (see reason 1), and help set a precedent based on common sense.

REFERENCES AND NOTES to accompany the above nine reasons are listed by reason number: (additional references and supporting documents for each reason are available upon request)

Notes for Introduction:

A listing of citizen groups worldwide that have banded together to oppose Smart meters: http://www.takebackyourpower.net/directory/

A list of Smart Meter Lawsuits:

http://thepeoplesinitiative.org/lawsuits/

http://www.mainecoalitiontostopSmartmeters.org/category/legal/

For legal documents concerning litigation against Kaui's KIUC:

http://stopkiuc.com

AEEM letter calling for a moratorium on Smart meter installation:
October 23, 2013: http://skyvisionsolutions.files.wordpress.com/2013/11/aaem-wireless-Smart-meter-ca se-studies.pdf

Notes for the Nine Reasons:

[1] Letter from attorney for Northeast Utilities to the Dept. of Public Utilities in Boston on January 17, 2014: http://haltmaSmartmeters.org/wp-content/uploads/2014/01/NSTAR_R12-76-Commen ts-7986-POSTED01172014_HIGHLIGHTED.pdf

A year-long study by Toronto Hydro showed 80% of customer's bills increased after Smart Meters were installed (Smart Meter Program Headed for Disaster, Horgan, 2010, www.bcndpcaucus.ca).

"Dozens and dozens of customers...are reporting some billing spikes, in one case more than 1,000 percent," reported Canada TV, www.TakeBackYourPower.net, 2013.

A class action lawsuit filed in Bakersfield, CA, (Dec. 2009) states Smart meters inflate customers' bills; Smart Meters Draw Complaints, USA Today, July, 2010.

[2] Report for Colorado PUC by E.L. Quinn, which includes a detailed description of how much can be learned about private lives from Smart meter data: http://www.dora.state.co.us/puc/DocketsDecisions/DocketFilings/09I-593EG/09I-593

EG_Spring2009Report-SmartGridPrivacy.pdf

Former CIA Director Gen. Patraeus stated that government will routinely spy on people through their "Smart" appliances (Wired, 2012);
also www.StopSmartMeters.org, 2014.

http://www.takebackyourpower.net/news/2014/04/16/industrys-own-words-6-admissions-of-in-home-surveillance-using-Smart-meters/

[3]

http://Smartgridawareness.org/2013/09/29/Smart-grid-cyber-security-in-state-of-chaos

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The FBI warned that Smart meters are being compromised and hacking will spread (www.KrebsOnSecurity.com, April, 2012).

Former CIA Director James Woolsey has labeled the Smart grid "a really, really stupid grid" based on security concerns (EnergyNow.com, 2011).

Kenneth Van Meter, Lockheed Martin's general manager of Energy and Cyber Services said that "by the end of 2015 we will have 440 million new hackable points on the grid... every Smart meter is going to be a hackable point" (Computerworld, Oct. 2010).

Cyber expert David Chalk stated there is 100% certainty the entire wireless mesh grid will crash in the next three years (Business Wire, April, 2012).

Research firm Zpryme estimates US utilities will spend a cumulative $7.25 billion in Smart grid security from now until 2020.

[4] Bioinitiative 2012 is a 1479 page report by 29 doctors and scientists from 10 countries that cites almost 2000 research studies on the biological effects of electromagnetic fields (EMFs) and radio frequency (RF) radiation. The authors state: "Bioeffects can occur from just minutes of exposure to mobile phone cell towers, WiFi, and wireless utility 'Smart' meters that produce whole-body exposure." EMF exposure has known cumulative effects. Alarming and sometimes exponentially increased cancer rates have directly paralleled increased use of wireless technologies: www.BioInitiative.org.

The US Naval Medical Research Institute (1972) published a report with over 2000 references documenting biological effects of microwave and RF radiation.

Important letters from experts:

http://sagereports.com/smart-meter-rf/?page_id=282

An additional lists of scientific papers showing health effects of EMF:

http://www.powerwatch.org.uk/science/studies.asp

http://www.takebackyourpower.net/research/health/

Biological Effects of Electromagnetic Fields, an excellent video by Professor Ted Litovitz: www.**youtube**.com/watch?v=6lAFbQqyVio

Jan. 2013 NIH research "A Review of the Ecological Effects of Radiofrequency Electromagnetic Fields (RF-EMF)" reviewed 113 studies and found 50% of animal studies and 75% of plant studies showed ecological effects of RF-EMF.

In Nov. 2012 a Dutch court turned down a cell tower permit referencing research in Germany and Switzerland that showed negative effects of EMFs on bees.

US Dept. of the Interior complaint about impacts from non-ionizing radiation on birds:

http://www.saferemr.com/2014/03/dept-of-interior-attacks-fcc-regarding.html

[5] WHO classification of microwave radiation as a Group 2B human carcinogen: http://Smartgridawareness.org/rf-health-effects/iarc-monograph-volume-102-rf-electromagnetic-fields/

Dr. Lennart Hardell (Professor of Oncology and Cancer Epidemiology who specializes in risk factors for cancer) wrote in 2013: “RF-EMF emissions from wireless phones... (should be)...regarded as carcinogenic to humans, classifying it as group 1 according to the IARC classification. Current guidelines for exposure need to be urgently revised.” http://www.ncbi.nlm.nih.gov/pubmed/24192496

[6] FCC guidelines are not based on any studies of long term low-level exposure to pulsed (digital) microwaves. Meeting current FCC guidelines only assures that one will not have heat damage and says nothing about the risks of many chronic diseases including cancer, miscarriage, semen quality, birth defects, autoimmune diseases, autism and ADD/ADHD.

THE FCC DOGMA: The DOGMA being adhered to by the FCC, IEEE and the telecom companies, and parroted by numerous government and international agencies and the power companies**:** “There are no significant effects of non-ionizing radiation (EMF) on living cells other than bulk heating of tissue at high levels of exposure.” To biologists and physicians in the know who have read the literature, experienced electrical sensitivity directly themselves or have seen hundreds of patients with electrical sensitivity, such a “no effect” statement is not reality or good science but is absurd. Not simply a propaganda statement made out of ignorance and wishful thinking, but an outright lie. **These groups defend their dogma by discounting all evidence to the contrary without honest consideration or scientifically valid rebuttal.** This may have begun as blind ignorance, but now, now that they have been fully informed of facts, it is a dishonest litany in service of power and profit. They adhere to and vehemently defend their dogma in spite of scientific logic based on peer-reviewed laboratory research and epidemiology studies. They feel it is their duty and obligation to increase profits for their shareholders; they cannot afford to admit to real health effects for fear it would bring

their house of cards tumbling down. Do not be misled; their arguments are hollow and devoid of the actual reality of the situation. **Most non-thermal studies funded by industry show no effects, and most publicly funded non-thermal studies do show effects; see "Business Bias as Usual" at:** http://www.conradbiologic.com/pdfs/Electromagnetic-Business-Bias.pdf.

FCC DOUBLE-SPEAK: An example of the FCC's double-talk is found on page 8 of their OET Bulletin 56, Fourth Edition, August 1999, *Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields,* where they say:

"scientific laboratories in North America, Europe and elsewhere have reported certain biological effects after exposure of animals and animal tissue to relatively low levels of RF radiation. These reported effects have included certain changes in the immune system, neurological effects, behavioral effects, evidence for a link between microwave exposure and the action of certain drugs and compounds, a "calcium efflux" effect in brain tissue ..... and effects on DNA."

But then they go on to say: "In general, while the possibility of "non-thermal" biological effects may exist, whether or not such effects might indicate a human health hazard is not presently known. Further research is needed to determine the generality of such effects and their possible relevance, if any, to human health." **This is not logic; to any scientist with biological training it is transparent spin.**

[7] A definition of ES is: "sensitized to EMF" as in allergic to, developing symptoms in response to EMF but not necessarily being able to sense EMF directly. Usually the EMF is detected only via painful and debilitating symptoms that it produces when or very soon after exposure to it, even when the person is not at first aware of its presence. It is EMF that is triggering the symptoms, because of repeated correlations with EMF exposure but not with anything else, and because of the timing of those correlations, including not finding out about the presence of the EMF until after the symptoms develop - i.e, not knowing at first that the EMF was present. This type of correlation is strong because:

1. it is reproducible with the same results (inadvertent blinded experiments repeated hundreds of time by almost every individual with ES, ***and*** in more than hundreds of thousands of people with ES),

2. there is no correlation with any other variable,

3. the timing of symptoms is that they follow ***after*** EMF exposure, and
4. people are in many cases unaware of the EMF source until ***after*** symptoms develop.

Of course, ordinary simple correlation by itself does not prove causation, but, the properties 1 throughout 4 above of the correlations in this case, all taken together, legitimately and strongly imply causation - cause and effect: **EMF, including from Smart meters alone, causes debilitating symptoms.**

For the "Smart Meter Health Effects Survey" and report of results, see:

http://www.mainecoalitiontostopSmartmeters.org/wp-content/uploads/2013/01/Exhibit

-10-Smart-Meter-Health-Effects-Report-Survey2.pdf

For personal testimonials of serious health effects, see Appendix 6, page 65 in the above link, and also: http://www.conradbiologic.com/pdfs/Santa-Rosa-Smart-Meter-Hearings.PDF

For the results of a 2011 Smart meter survey see: http://www.conradbiologic.com/pdfs/EMSnetwork-Survey-Results-FinalReduced.pdf

For expert witness testimony against Smart meters in the State of Maine, USA case, see: http://www.mainecoalitiontostopSmartmeters.org/2013/02/introduction-to-our-puc-filin gs-of-expert-and-lay-witness-testimony/

Also see the other references listed at:

http://www.conradbiologic.com/articles/EMFreferences.html

[9] The book "Cell Phones" by Dr. George Carlo and Martin Schram.

Notes for Conclusion

SUGGESTIONS FOR ALTERNATIVES: Possible safe alternatives to wireless Smart meter systems are meters either connected directly to fiber optics or hard wired to phone lines or CATV cable, and modems that transmit the data on the optical fiber, phone lines or CATV cable with filtering on the rest of the phone lines or cable going into the home; these modems designed to have very low RF emissions, to be shielded

and use very low power, very low RF emitting types of microprocessors and LCD displays and filtered linear power supplies.

To maintain privacy, data collection by Smart meters should be stored as a simple running usage summation **within the Smart meter itself**, and only then reported in a single transmission per month to utility. For safety and security reasons, cut-off switches should no longer be incorporated into Smart meters. To locate power

outages, sensors every few city blocks on phone poles could call in info via phone modem. To report instantaneous power draw it would be adequate to employ sensors at the substations; these would see an instantaneous power usage aggregate of many households, effectively preventing invasion of privacy because they could not be used to ascertain what is going on in any one home.

It is important to note while exSmartning alternatives to the mesh system, that

PLC/BPL (Power Line Communication/Broadband over Power Lines) is NOT a safe alternative to Smart meter mesh networks, for the following reasons:
a) PLC/BPL operates by transmitting at either about 35 KHz or 85KHz onto the power lines, and not just out into the street, but also inadvertently backwards onto the house wiring throughout the whole house.

b) In contrast with Smart meters operating via Mesh networks, which are designed to transmit wirelessly into space and not to couple into power lines (though some inadvertent coupling probably does occur), PLC is ***designed*** to couple its frequency directly and efficiently onto the power lines.

c) Due to its KHz frequency range, PLC travels much further on power lines than microwaves do because of its long wavelength, not only on power lines but also deeper into the house wiring with much less attenuation due to distance. Thus the 60 Hz house power becomes contSmartnated with these frequencies.

d) Outdoor power lines suspended in air from poles act as ideal radiating/transmitting antennas for the PLC frequencies, because the length of these wires is in the same range as the wavelength. This in turn contSmartnates whole neighborhoods/cities with the KHz radiation by radiation through space, not only by conduction through wiring.
e) From reports of persons made newly electrically sensitive by Smart meters in areas where PLC is already deployed instead of wireless Smart/Mesh, **PLC seems to be at**

least as sensitizing as Smart/Mesh, and in general causes more painful symptoms. This is understandable from the properties of PLC described in a) through d) above.
