

TO: WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION
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FROM: Washington Jural Assembly Members
c/o PO Box 322
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This correspondence consists of our written comments and exhibits regarding the request for comments of: Rulemaking to modify existing consumer protection and meter rules to include Advanced Metering Infrastructure - Docket U-180525.

This correspondence is also giving Lawful Notice and Demand to the WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION and any and all Government, Municipalities, Cities, Townships, Public Officials: This is notice of law as applicable to your corporate and personal financial liability in the event of any violations upon the rights, privileges and immunities of "We the People" of this state which the Washington Jural Assembly represents.

For those on the commission who have never heard of the Washington State Jural Assembly we are a group of state nationals who have come together to work for the rights and safety of the people of this state, which includes you the members of this commission.

Regarding the Opt-in versus Opt-out option, we stand in the Opt-In category in which for the context of advanced meter installation, each customer would be required to contact the company and express their agreement to have an advanced meter installed at their premises and how it is to be connected (wired vs wireless). This choice must be made each time a new person moves into the home. Metering choice cannot and should not be an automatic choice.

We will now address the specific question list.

In response to Question 1:

With regard to Customer Data Privacy, this should be treated with utmost care. The key to privacy protection is to have the user maintain control over the collection, use, reuse, and sharing of personal information including their use of electricity. This will require clear communication and education regarding the privacy options available to the user.

The actual data should be encrypted as it travels through the various layers, and there should always be a minimal amount exposure of that data to be decrypted and who has actual access to it. This should always be maintained as a priority. What needs to be avoided is data being spread around, sold and resold, and then being used for aggressive targeted marketing, social media manipulation or weaponized against the individual.

Power transmitters, which are used in “Smart Appliances”, should never be required.

Smart meters/advanced meters should be installed to operate by wired transmission, rather than wireless, due to harm caused by wireless transmissions to all of life (see our comments below and the excellent research by a fellow Washingtonian, Henry Lai, among others in the exhibit section). Shielded cable, such as is available for cable modem (wired internet connection) or fiber optic connect smart meters to utilities using existing infrastructure already in place. The evidence against the safety and accuracy of wireless smart meters/advanced meters is becoming overwhelming with each passing day.

In response to Question #2 and #3 and #4

In looking at the security measures and protocols that provide a full framework for all the layers of security, you see a landscape that is severely lacking for many reasons, especially in the wireless arena. So, while the granularity of questions is good, there will not be fully vetted answers readily available.

According to a report ([PDF](#)) published by Sandia National Laboratories, AMI is susceptible to multiple threats. A consumer could use information from an AMI vendor or reverse-engineer the device’s firmware to reprogram the meter so that it reports false information, for example, whereas a malicious insider could access the AMI on the customer end to modify pricing information or change network settings attacks.

“..it’s feasible that a sophisticated actor could access the power grid and tamper with people’s electricity. Cutting off power to a significant population through smart meters would require either a mass compromise of the meters themselves or, more likely, a compromise of the infrastructure managing the meters. The first case really hits upon [supply chain risks](#), but these risks aren’t unique to smart meter infrastructure; they’re applicable to all devices that utilities acquire. Smart meters are a good example of where foundational security controls need to be extended to deal with new environments rather than inventing a new type of control.

-Source: <https://www.tripwire.com/state-of-security/security-data-protection/security-controls/using-smart-meters-digital-attack-vector/>

However, the issue of managing privacy risks throughout the lifecycle, as well as post market data risk management is key.

The primary issue stands that Customers should **always** be in control of their personal data, whether it is identified or aggregated. Customers need to be disclosed with whom and when their data will be aggregated. Aggregations should be kept to a minimum, as stated in Question 1 response. Data breaches need to be reported to the Customers as well as other relevant parties. Disposal of data needs to be clearly defined and reported.

Outage reports and regular updates are critical for Customers. Education on all aspects and variances of the reporting should be available for Customers. Data not explicitly classified as PII that may reveal details, patterns, or other insights into the personal lives, characteristics, or activities of individual customers again should be in control of the Customer, as this is a level of information **never before** exposed. **The implications of misuse of this data cannot be understated.** We reiterate our statement in the previous question: "What needs to be avoided is data being spread around, sold and resold, and then being used for aggressive targeted marketing, social media manipulation or weaponized against the individual." Please see the Architecture of the Internet of Things Diagram.

Here is an excerpt from California's experience:

'At a PUC workshop on Dec. 9, 2011, PG&E representatives said that customers would be able to compare their energy usage online to others with the same home square footage. Asked how they would know the square footage of our homes, a rep quickly responded, "That's public information."

Smart Grid TMC-Net.com:

GridGlo is working with utilities to combine consumer household behavioral data with energy usage data—along with a dollop of data on weather, demographics, motor vehicle registrations, and even satellite imagery—and from all that, to draw strategic operational and marketing conclusions. The process is called data fusion.

Behave Yourself! The Utilities 'Have Got Your Numbers' and Next They'll Know Your Habits, Too

<http://smart-grid.tmcnet.com/topics/smart-grid/articles/176270-behaveyourself-utilities-have-got-numbers-next-theyll.htm>

The possibilities for data fusion are endless, particularly with the implementation of the Home Area Network. Medical and pharmaceutical records, and data collected from intelligent transportation systems are just a few examples of the data that can be "fused" together to create complete portraits of our daily lives.

New Samsung LED HDTVs "will now include built-in, internally wired HD cameras, face tracking and speech recognition capabilities, and twin microphones. In the 2012 8000-series plasmas, the cameras and microphones are built directly into the screen bezel. The 7500 – 8000ES-series TV's, however, will have the cameras permanently attached to the top of the set.

<http://info.themicroeffect.com/2012/04/06/cia-home-invasion-smart-tvs-and-theinternet-of-things/>

Response to: *Prepaid Service and Customer Deposits*

Electric Utility Services are no longer an option for Customers since Utility Companies have become Monopolies – especially private Corporate Utilities. Without having alternative energy options such as those offered through solar panels or Keshe Foundation technology (www.keshefoundation.org), then Customers are increasingly at the mercy of Utility Services. These services push a presumptive model of subscription and payment. Forcing prepaid services and deposits on Customers is an aggressive stance by the Utility Service Company toward the Customer. Where is the choice? Where is the free market? It is an extractive, controlling technology that seeks to harvest data never before available to sell to the highest bidder.

These technologies are old technologies – over 100 years old. Smart Meter/Advanced Meter Technology is not an advanced technology as advertised. At its base – it still uses an electric grid, fueled by coal generating electricity:

Coal power in the United States accounted for 39% of the country's electricity production at utility-scale facilities in 2014, 33% in 2015, and 30.4% in 2016. Coal supplied 12.6 quadrillion BTUs of primary energy to electric power plants in 2017, which made up 91% of coal's contribution to US energy supply. Utilities buy more than 90% of the coal consumed in the United States.

Source: Wikipedia

Response to: *Remote Disconnection*

This section, in particular, is extremely disturbing. Not only can this capability be hacked, but it can also be weaponized.

WUTC needs to clearly define the statement:

“What mechanism in customers’ bills will display customer-elected load curtailment and control? ”

Here is advice from the experience of Remote Disconnection in California:

“AARP, National Consumer Law Center, and Public Citizen:

1 John Hersey, illustrator

<http://www.scientificamerican.com/sciammag/?contents=2010-10>

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...Another major consumer concern that has yet to be addressed by smart metering proponents is the threat smart meters pose to consumer protections that have been developed over the last 30 years. Smart meters have been touted by industry proponents as offering the benefit of remote disconnection. From a consumer perspective, this is not a benefit but rather an erosion of fundamental consumer rights.

AARP, National Consumer Law Center, and Public Citizen Comments to:

DEPARTMENT OF ENERGY Smart Grid RFI: Addressing Policy and Logistical Challenges, November 1, 2010," David Certner et al.
http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/AARPNCLCPublic_CitizenCommentsDOE1101.pdf

Quoted in

<https://sites.google.com/site/nocelltowerinourneighborhood/home/wireless-smart-meter-concerns/going-deep-understanding-the-big-picture-and-real-costs-and-concerns>

State of Maine, Office of Public Advocate:

While current PUC rules allow for this, we view this as very risky because of the possibility that the wrong house will be disconnected or that reconnection will malfunction. Also, when a CMP worker physically visits the premises to disconnect the power it not only reduces the chance of a wrongful disconnection, it also gives a nonpaying customer one last chance to pay and avoid the dark. These benefits and protections vanish with AMI.

<http://www.maine.gov/meopa/smartgrid/index.shtml>

It's not just the dark. Particularly in hot summer or cold winter areas, or those who have medical devices or must keep the temperature at a certain level because of health problems, the risk to human life is substantial. In Wisconsin, the utilities cannot disconnect power from Nov. 1- April 15. In Maine, it is from Nov. 15 – April 15. However, does California have a similar law? What if people cannot pay their bill during hot or cold weather? What if elderly people who have become forgetful, forget to pay their bill? What if there is a mistake? There may be no second chance when the power is disconnected. A simple check by a human can remind someone to pay the bill, or give information on financial help to pay the bill, or verify that it is the right address.

Residential customers who are remotely disconnected without a last chance to make payment arrangements, or who shut themselves off with no utility contact (when their prepayment card runs out of funds) are at great risk in terms of health and safety.

A recent investigative news report from Texas (where deregulated electricity commodity vendors can offer service on a pre-paid only basis) tells of vulnerable prepayment electricity customers being cut off without notice. Families with children have had to abandon their homes. A paraplegic who requires air conditioning to maintain a safe body temperature lost his electricity on days when the temperature exceeded 100 degrees.

A heart failure patient who needed power for an oxygen machine was cut off twice by her pre-payment meter in one summer.

The risks of disconnection by remote control or by automatic action of a pre-payment meter or service limiter are also shown in the case of a 90-year old

Michigan man who froze to death in his own kitchen last winter. When he was found, there were funds to pay for his bill on the table. But he had missed a payment and the utility had installed a service limiter. When the service limiter tripped, the gentleman could not or did not know how to reset the limiter.

Customers whose utilities are disconnected have died from hypothermia, from fires set by candles used for lighting in the absence of electricity, and from other consequences of loss of power. The concern of consumer advocates over the dangers of involuntary remote controls on household usage cannot be overstated.

AARP, National Consumer Law Center, and Public Citizen Comments to Department of Energy Smart Grid RFI: Addressing Policy and Logistical Challenges, November 1, 2010," David Certner et al.

http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/AARPNCLCPublic_CitizenCommentsDOE1101.pdf quoted in

<https://sites.google.com/site/nocelltowerinourneighborhood/home/wireless-smart-meter-concerns/going-deep-understanding-the-big-picture-and-real-costs-and-concerns>

And with a remote shut-off, what are the possibilities of the signal going to the wrong house?

With potential for mistakes, especially with this wirelessly involved system, the wrong household pays the consequences.

There are too many ways for this system to fall apart and harm people, especially with utility companies that already exhibit a disregard for the public's welfare or have difficulty with existing record-keeping. It's just too easy to flip a switch back at the head office.

Los Angeles Times, February 5, 2010:

The Division of Ratepayer Advocates speculates that widespread installation of Smart Meters is part of the 75% increase in low-income shut-offs and 40% overall shut-offs by PG&E between Sept. 2008 and Sept. 2009, compared with the previous twelve months.

Jump in service disconnections sparks move by California, Marc Lifsher, 2/5/10

<http://articles.latimes.com/2010/feb/05/business/la-fi-puc-disconnect5-2010feb05>

Also: http://abclocal.go.com/kgo/story?section=news/7_on_your_side&id=7555472

However, of much greater impact is the threat of intentional disconnection by those with a little technical know-how (previously discussed under "Hacking/Cybersecurity"). They could disconnect an individual home, a neighborhood, a city, a region, or our nation. "They" could be a disgruntled ex-spouse or neighbor, a gang, a mischief-maker, or a terrorist. The cost of injury and death, and damage to our society is beyond calculating. We depend on electricity

for even the most basic needs, such as power for pumping water. If these fail, most people have no back-up plan. And if it occurred in extreme weather areas, during the summer or the winter, with no way to cool or heat, the consequences would be horrifying.”

Response to section: *Meters*

This is our primary concern and why we call for the immediate halting, cease and desist of the wireless installation of Smart Meters/Advance Meter Installations. We address the safety concerns in detail below after addressing the question list. Dr. Cindy Russell from the Environmental Health Trust (<https://ehtrust.org/>) makes the following recommendations:

RECOMMENDATIONS TO PROTECT PUBLIC HEALTH

1. Do not proceed to roll out 5G technologies pending pre-market studies on health effects.
2. Reevaluate safety standards based on long term as well as short term studies on biological effects.
3. Rescind a portion of Section 704 of the Telecommunications Act of 1996 which preempts state and local government regulation for the placement, construction, and modification of personal wireless service facilities on the basis of the environmental effects so that health and environmental issues can be addressed.
4. Rescind portions of The Spectrum Act which was passed in 2012 as part of the Middle Class Tax Relief and Job Creation Act, which strips the ability city officials and local governments to regulate cellular communications equipment, provides no public notification or opportunity for public input and may potentially result in environmental impacts.
5. Create an independent multidisciplinary scientific agency tasked with developing appropriate safety regulations, premarket testing and research needs in a transparent environment with public input.
6. Label pertinent EMF information on devices along with appropriate precautionary warnings.

Response to section: *Billing Requirements*

The safety and efficacy of Smart Meters/Advance Meter Installations are questionable at best. California offers a wealth of information on their experiences that we in Washington should take heed of. In particular:

“Customers have seen their bills go up for the same energy use, bills sometimes doubling, tripling and more – including for empty houses. This surfaced in Bakersfield and Fresno initially, and contrary to PG&E claims, the bill increases

started in the winter time, not in the summer, according to Bakersfield Californian columnist Lois Henry.

There have also been questions about these wireless meters interfering with each other and the likelihood of bills being ascribed to the wrong customer. How frequently that happens, no one knows, because there has been no investigation. In 2010, Stanford students had their billing information mixed up wirelessly with their neighbors, and they were billed for their neighbor's electrical use. They had the savvy to figure out why their bills had skyrocketed, but PG&E only took corrective action after Michael Finney and a Bay Area TV station got involved.
http://abclocal.go.com/kgo/story?section=news/7_on_your_side&id=7424533

Stanford students' bill mix-up raises questions about SmartMeters
In response to customers' high bills, utility companies have blamed the weather, new rates, water leaks, and the public, and have worked out payment plans. This is the reason why former State Senator Dean Florez got involved.

People are experiencing high bills in other parts of the country and the world as well. The website BurbankAction.com has several pages full of information and personal accounts on this, including overbilling in Australia.
<https://sites.google.com/site/nocelltowerinourneighborhood/home/wireless-smartmeter-concerns/smart-meter-consumers-anger-grows-over-higher-utility-bills>
<https://sites.google.com/site/nocelltowerinourneighborhood/home/wireless-smartmeter-concerns/lessons-learned-what-s-happened-in-australia>

Monterey Bay area TV news channel KION did a side-by-side comparison of an analog meter with a PG&E Smart Meter on a single family home for three months. The Smart Meter logged an extra 37 kilowatt hours over the three months, compared to the analog meter, costing an extra \$10.76. That would be a yearly increase of \$43.04 for 148 kilowatt hours. If all Smart Meters similarly measured energy, that would mean a substantial revenue increase for the utility companies, even at Feb. 2011 rates -- \$430 million for PG&E alone from its approximately 10 million customers. That is without time-of-use rates."

In response to: *Customer Education*

How we have arrived at this point in time is addressed by the California document: "The federal government has ignored the known risks with this technology, including the risks to national security, and encouraged with legislation (Energy Act of 2005) and grants (ARRA) the deployment of this system."

Public agencies, such as the EPA and the FCC, did not step in. A report prepared by EPA scientists on the carcinogenicity of EMF in the 1980s, initially classifying EMF as a probable carcinogen, has still not been released to the public by EPA officials. Members of the federal RF Interagency Working Group raised substantial questions on standards in 1999. The FCC has refused repeated calls to revise national standards to include non-thermal impacts, in marked contrast to the European Parliament and many member nations which have been revising or considering

revising limits downward. The Austrian Medical Association has proposed “preliminary benchmarks” that are 10 million times lower than ours – FCC 1000 microW/cm² (maximum) vs. .0001 microW/cm² Austrian recommendation. The Swiss organization Physicians for the Environment proposes lowering Swiss limits by a factor of 10; for instance, cell tower antennas are subject to a limit of 5 microW/cm². This would further lower that to .5 microW/cm² – 2000 times lower than FCC guidelines.

Overseas medical doctors and governments are taking the extensive research and documents, such as the Bioinitiative Report (www.bioinitiative.org) , seriously. As a result, they are taking measures to protect the public.

Industry has proceeded in an approach more akin to the Gold Rush and piracy than to any responsible business practices. Known and potential problems were ignored by utility companies and municipal utility districts, especially in the rush to obtain federal grants and meet deadlines under ARRA.”

Now that the Federal Corporate Government is in bankruptcy proceedings, it is questionable that funding and grants will continue.

Therefore, State Utility Commissions and Public and Private Utility Companies will be increasingly responsible for bearing the burdens of continuing the rollout of this infrastructure.

Commission Education needs to occur first and foremost to bring all Commissioners up to speed to the true nature of issues and problems instead of just continuing to beat the installation and roll out drum blindfolded.

Customer Education needs to occur at many levels:

- what the technology is and how it works
- what are the risks and dangers to all living things
- what are the implications of the data gathering and how it affects personal privacy
- what privacy controls you have and how to use them
- how Customer data moves through the system, how it is protected, who has access to it and in what format
- how data is aggregated and how it affects your personal data
- how the power company intends to streamline power use and how it affects the customer
- how to address problems, inaccuracies, and notification of security breach
- interconnectivity: issues and resolution
- remote disconnection implications and methods

Other Factors: JOB LOSS

Again, we look to California for guidance:

A PG&E rep admitted during a Marina City Council meeting in 2010 that when PG&E knew they were going to this program, they began shifting meter reading employees to temp positions, and that when they said there was very little job loss, they were talking about very little "employee" job loss, not meter reader job loss. How many meter readers have been employed by all the utility companies, including municipal utility districts? "Positions captured" is what the quarterly PG&E reports say. Literally, thousands of people statewide are losing their jobs due to this program. This program contributes to state unemployment. For those utility companies using ARRA funds, this is in conflict with the stated intent of that program, which was to put people back to work, not take away their jobs.

Meter readers are often the ones who spot gas leaks. They have even responded to other emergency situations on their routes. That layer of oversight will be gone.

We now continue to address the METERS section and the health and safety issues.

It is clear from the policy statement put out in July of 2018 that the WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION has ruled for the benefit of the utility corporations instead of for the health, safety and well-being of "We the People" of Washington.

After extensive research on the safety of Smart Meter Technology it is evident that this commission has overlooked one of the most important considerations they should have been concerned with and that is the affect these ELF and radio frequencies have on the public health as well as the health of pets within the home, livestock, farm animals, birds, trees, plants and all living creatures. The numerous public comments reporting unhealthy side effects from exposure to the smart meters should cause a responsible person of authority to look into the current studies on the effects, specifically, of the radio frequencies these new Smart Meters/Advance Meters are emitting throughout the day.

The research shows without a reasonable doubt that bio effects and some adverse health effects occur at far lower levels of Radio Frequency and ELF exposure than what this commission relied on from studies put out in 2007 by the ICNIRP. (The International Commission on Non-Ionizing Radiation Protection) if that is in fact who they used to gauge the safety of these devices.

A simple search on the internet by commission staff would have discovered this information so it is our contention that either this commission failed to do their due diligence to protect the welfare of the public's health and safety and to educate themselves in this important health information or they disregarded this information in favor of taking the easy path of relying on outdated information put out by the ICNIRP in 2007 which is basically the same exposure thresholds they put out in 1996.

The ICNIRP touts independence from commercial, national and vested interests. ICNIRP's members do not represent their country of origin nor their institute. They cannot hold a position of employment or have other interests that compromise their scientific independence.

Although the ICNIRP does not receive money from industry, its funding stems from subsidies granted by national and international public institutions. These national and public institutions are corporate in nature and they are giving this independent research firm subsidy money to do research. As in so many studies done today the research is unfortunately tainted to favor the institutions that would benefit which are highly influenced by industry. This was the conclusion of the Council of Europe which stated that the ICNIRP was influenced by their benefactors thus making their exposure thresholds they publish highly suspect.

Anyone taking the time to research Smart Meter Technology, becomes aware that the health and safety of the public is never addressed. While researching WUTC data, health and safety data is not present, nor is it contained in the Smart Meter Technology report the utilities are required to file with the WUTC. There is never any mention of the health and safety effects these ELF and Radio Frequencies are giving off from the equipment they are installing across the state, this nation and throughout the world. This is completely unacceptable.

A working group composed of scientists, researchers and public health policy professionals, **The BioInitiative Working Group** (www.bioinitiative.org) has joined together to document the information that must be considered in the international debate about the adequacy (or inadequacy) of existing public exposure standards.

This Report is the product of an international research and public policy initiative to give an overview of what is known of biological effects that occur at low-intensity EMFs exposures (for both radio frequency radiation RF and power-frequency ELF, and various forms of combined exposures that are now known to be bioactive). The Report examines the research and current standards and finds that these standards are far from adequate to protect public health.

Recognizing that other bodies in the United States, United Kingdom, Australia, many European Union and eastern European countries as well as the World Health Organization are actively debating this topic, the BioInitiative Working Group has conducted an independent science and public health policy review process. The report presents solid science on this issue and makes recommendations to decision-makers and the public.

The clear consensus of the BioInitiative Working Group members is that the existing public safety limits are inadequate for both ELF and RF.

It appears it is the **information** conveyed by electromagnetic radiation (rather than heat) that causes biological changes - some of these biological changes may lead to loss of well-being, disease and even death.

Effects occur at non-thermal or low-intensity exposure levels thousands of times below the levels that federal agencies say should keep the public safe. For many new devices operating with wireless technologies, the devices are exempt from any regulatory standards.

The existing standards have been proven to be inadequate to control against harm from low-intensity, chronic exposures, based on any reasonable, independent assessment of the scientific literature. It means that an entirely new basis (a biological basis) for new exposure standards is needed.

The exposure levels for increased risk are quite low – just above background or ambient levels and much lower than current exposure limits. **The existing ICNIRP limit is 904 mG in the US for ELF.**

Increased risk for childhood leukemia starts at levels almost **one thousand times below** the safety standard. Leukemia risks for young boys are reported in one study to double at only **1.4 mG and above (7)**. Most other studies combine older children with younger children (0 to 16 years) so that risk levels do not reach statistical significance until exposure levels reach **2 mG or 3 mG**. Although some reviews have combined studies of childhood leukemia in ways that indicate the risk level starts at 4 mG and above; this does not reflect many of the studies reporting elevated risks at the lower exposure levels of **2 mG and 3 mG**.

Several recent studies provide even stronger evidence that ELF is a risk factor for childhood leukemia and cancers later in life. In the first study (9), children who were recovering in high- ELF environments had poorer survival rates (a 450% increased risk of dying if the ELF fields were **3 mG and above**). In the second study, children who were recovering in 2 mG and above ELF environments were 300% more likely to die than children exposed to **1 mG and below**. Remember as stated above the acceptable exposure threshold established by the ICNIRP was set at **904mG** which is almost 1000 times higher. There is little doubt that exposure to ELF causes childhood leukemia. These two studies give powerful new information that ELF exposures in children can be harmful at levels above even 1 mG.

The third study looked what risks for cancer a child would have later in life, if that child was raised in a home within 300 meters of a high-voltage electric power line. (11) For children who were raised for their first five years of life within 300 meters, they have a life-time risk that is **500%** higher for developing some kinds of cancers.

The consequence of prolonged exposures to children, whose nervous systems continue to develop until late adolescence, is unknown at this time. This could have serious implications to adult health and functioning in society if years of exposure of the young to both ELF and RF result in diminished capacity for thinking, judgment, memory, learning, and control over behavior.

In our age of technology where computers systems are being installed in school systems where students are exposed to this wireless field of ELF and RF frequencies it saddens us that the industry has no regard to the health and safety of our youth.

Recent opinions by experts have documented deficiencies in current exposure standards. There is widespread discussion that thermal limits are outdated, and that biologically-based exposure standards are needed.

Everyone knows that wireless "smart" meters communicate via microwaves. What was unknown until now is that additional frequencies are transmitted in the 2 to 50 kilohertz range. Numerous studies have shown repeatedly that those very same frequencies disrupt the human nervous system. Indeed, "nerve block" is the phrase used in the studies to describe what occurs. The studies are not controversial.

In other words, there are no studies that show otherwise. Nerve block induced by frequencies in the 2 to 50 kilohertz range is an established fact. The studies that show this nerve block are all from reputable sources including the epitome of "establishment" science when it comes to electricity, the **Institute of Electrical and Electronics Engineers**.

WIRING IN THE HOUSE CAN ACT LIKE AN ANTENNAE RELEASING HARMFUL DIRTY ENERGY

What's more, a less-well known kind of EMF, known as high-frequency voltage transients, or "dirty electricity." Being a suspected carcinogen these transients are largely by-products of modern energy-efficient electronics and appliances—from computers, refrigerators, and plasma TVs to compact fluorescent lightbulbs and dimmer switches—which tamp down the electricity they use.

This manipulation of current creates a wildly fluctuating and potentially dangerous electromagnetic field that not only radiates into the immediate environment but also can back up along home or office wiring all the way to the utility, infecting every energy customer in between...This electromagnetic field has been detected with field metering equipment up to 6 feet away from the wiring inside the walls throughout your entire house.

This electromagnetic field essentially charges up the electrons in every cell of your body. Some research suggests that by overlapping the body's signaling mechanisms, transients may interfere with the secretion of insulin, drown out the call and response of the immune system, and cause other physical havoc."

... "Opposite charges attract, and like charges repel. When a transient is going positive, the negatively charged electrons in your body move toward that positive charge. When the transient flips to negative, the body's electrons are pushed back. Remember, these positive-negative shifts are occurring many thousands of times per second, so the electrons in your body are oscillating to that tune. Your body becomes charged up because you're basically coupled to the transient's electric field."...

And, from the second article, at <https://www.prevention.com/electroshocker/index.shtml>:

“A report that cited more than 2,000 studies found that chronic exposure to even low-level radiation (like that from cell phones) can cause a variety of cancers, impair immunity, and contribute to Alzheimer’s disease and dementia, heart disease, and many other ailments.

One likely way: EMFs open the blood-brain barrier, causing blood vessels to leak fluid into the brain and damage neurons.

Here is a letter recently sent to the CPUC by engineer Rob States:

Two engineers have been diligently working on Smart Meter dirty power and RF issues – the combined team possess two MS degrees from MIT, a California P.E. license (Professional Engineer’s License), and a PhD from Stanford in Electrical Engineering, Magna Cum Laude. They have been working on this nearly continuously for the last four months.

The scientific data tells us that 5% of the population will get sick immediately from RF disease, and another 10% will develop the disease over time. This means about 4.5 million people in California are potential victims.

Since individuals with no history of RF disease are experiencing symptoms the first day the meter is installed, we can assume the meter’s RF emissions are not the only problem. The RF network is activated months after initial meter installation.

Extensive measurements have demonstrated that all of the meters measured so far, including ABB, GE, and Landis Gyr, emit noise on the customer’s electric wiring in the form of high frequency voltage spikes, typically with an amplitude of 2 volts, but a frequency anywhere from 4,000 Hertz, up to 60,000 Hz.

The actual frequency of the phenomena is influenced by the devices that are plugged into the customer’s power. Some houses are much worse than others, and this observation has been confirmed by PG&E installers that have talked to us.

Since 85% of the population is not immediately effected by this phenomena, the knowledge about what is causing symptoms in PG&E’s customers will be slow to evolve. We expect word of mouth to be the primary information source since the media is so disconnected from this phenomena.

The scientific literature has studied microwave illness since the 1930’s when radar operators became ill. Radar equipment emits radiation that is intermittent, and recent scientific papers have increasingly reported that pulsed radiation is significantly worse than continuous radiation.

Humans have been exposed to continuous microwave transmissions from radio for decades. Exposure that Smart Meters present to California citizens is new and unlike previous electromagnetic emissions.

PG&E has published none of the functional specifications of the meters now being installed, including their BLOCK DIAGRAMS, SCHEMATICS, or BILL OF MATERIALS. The scientific community has been prevented from identifying any of the design problems prior to their installations.

The decisions by PG&E and the CPUC to conduct NO SAFETY STUDIES has forced them to discover the current problem after the meters have been installed and after significant capital has been invested in this project.

Even a rudimentary safety test with 100 randomly selected people would have probably uncovered this problem long before its appearance in PG&E's customer base.

The fix for preventing dirty power disease in PG&E customers is expensive. Because the dirty power must be stopped in the customer's LOW IMPEDANCE house wiring, all of the filter components must handle high power, and therefore are expensive.

Current estimates put the end customer cost at \$500, and that does not include fixing dirty power interactions that Smart Meter causes with devices already in the customer's home, such as computers, FAX machines, copiers, plasma TV's, and the like.

Merely treating 15% of the California households puts the total liability for after market problems at \$2B, approximately equal to the entire cost of the existing program's roll out.

Though the cell phone industry has purchased immunity from liability through their extensive lobbying efforts, the experience of the tobacco and chemical industries has shown that this immunity can fade as priorities of the general population affects the political process.

Legal liability could force PG&E to approach the CPUC for a doubling of the existing utility rate. This would be a politically untenable request, and could result in the dissolution of the CPUC's existing regulator authority.

The future for both the CPUC and PG&E is uncertain, and potentially disastrous. A prudent course would be to treat the entire Smart Grid project in California as a major risk, and to aggressively engage in damage control.

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Lookout WUTC. The decisions you make now may affect you later if the reality of the situation is not realized.

While new ELF limits are being developed and implemented, a reasonable approach would be a 1 mG planning limit for habitable space adjacent to all new or upgraded power lines and a 2 mG limit for all other new construction. It is also recommended for that a 1 mG limit be established for existing habitable space for children and/or women who are pregnant (because of the possible link between childhood leukemia and in utero exposure to ELF).

This recommendation is based on the assumption that a higher burden of protection is required for children who cannot protect themselves, and who are at risk for childhood leukemia at rates that are traditionally high enough to trigger regulatory action. This situation in particular warrants extending the 1 mG limit to existing occupied space.

"Establish" in this case probably means formal public advisories from relevant health agencies. While it is not realistic to reconstruct all existing electrical distribution systems, in the short term; steps to reduce exposure from these existing systems need to be initiated, especially in places where children spend time, and should be encouraged.

These limits should reflect the exposures that are commonly associated with increased risk of child hood leukemia (in the 2 to 5 mG range for all children, and over 1.4 mG for children age 6 and younger). Nearly all of the occupational studies for adult cancers and neurological disease report their highest exposure category is 4 mG and above, so that new ELF limits should target the exposure ranges of interest, and not necessarily higher range

Given the scientific evidence at hand the rapid deployment of new wireless technologies that chronically expose people to pulsed RF at levels reported to cause bioeffects, which in turn, could reasonably be presumed to lead to serious health impacts, is of public health concern.

Preventative action is warranted to reduce or minimize RF exposures to the public.

There is suggestive to strongly suggestive evidence that RF exposures may cause changes in cell membrane function, cell communication, cell metabolism, activation of proto-oncogenes and can trigger the production of stress proteins at exposure levels below current regulatory limits.

Resulting effects can include DNA breaks and chromosome aberrations, cell death including death of brain neurons, increased free radical production, activation of the endogenous opioid system, cell stress and premature aging, changes in brain function including memory loss, retarded learning, slower motor function and other performance impairment in children, headaches and fatigue, sleep disorders, neurodegenerative conditions, reduction in melatonin secretion and cancers

This information now argues for thresholds or guidelines that are substantially below current FCC and ICNIPR standards for whole body exposure. Uncertainty about how low such standards might have to go to be prudent from a public health standpoint should not prevent reasonable efforts to respond to the information at hand.

No lower limit for bioeffects and adverse health effects from RF has been established, so the possible health risks of wireless WLAN, WI-FI systems the rollout of the upcoming 5G network, for example, will require further research and no assertion of safety at any level of wireless exposure (chronic exposure) can be made at this time.

The lower limit for reported human health effects has dropped 100-fold below the safety standard (for mobile phones and PDAs); 1000- to 10,000-fold for other wireless (cell towers at distance; WI-FI and WLAN devices). The entire basis for safety standards is called into question, and it is not unreasonable to question the safety of RF at any level.

New regulatory limits for ELF are warranted. ELF limits should be set below those exposure levels that have been linked in childhood leukemia studies to increased risk of disease, plus an additional safety factor. It is no longer acceptable to build new power lines and electrical facilities that place people in ELF environments that have been determined to be risky (at levels generally at 2 mG and above).

A precautionary limit of 0.1 ($\mu\text{W}/\text{cm}^2$ (which is also 0.614 Volts per meter) should be adopted for outdoor, cumulative RF exposure. This reflects the current RF science and prudent public health response that would reasonably be set for pulsed RF (ambient) exposures where people live, work and go to school.

This level of RF is experienced as whole-body exposure, and can be a chronic exposure where there is wireless coverage present for voice and data transmission for cell phones, pagers and PDAs and other sources of radio frequency radiation.

Some studies and many anecdotal reports on ill health have been reported at lower levels than this; however, for the present time, it could prevent some of the most disproportionate burdens placed on the public nearest to such installations.

Although this RF target level does not preclude further rollout of WI-FI technologies, we also recommend that wired alternatives to WI-FI be implemented, particularly in schools and libraries so that children are not subjected to elevated RF levels until more is understood about possible health impacts.

This recommendation should be seen as an interim precautionary limit that is intended to guide preventative actions; and more conservative limits may be needed in the future.

Bioeffects are clearly established and occur at very low levels of exposure to electromagnetic fields and radio frequency radiation. Bioeffects can occur in the

first few minutes at levels associated with cell and cordless phone use. Bioeffects can also occur from just minutes of exposure to mobile phone masts (cell towers), WI-FI, and wireless utility 'smart' meters that produce whole-body exposure. Chronic base station level exposures can result in illness.

Many of these bioeffects can reasonably be presumed to result in adverse health effects if the exposures are prolonged or chronic. This is because they interfere with normal body processes (disrupt homeostasis), prevent the body from healing damaged DNA, produce immune system imbalances, metabolic disruption and lower resilience to disease across multiple pathways. Essential body processes can eventually be disabled by incessant external stresses (from system-wide electrophysiological interference) and lead to pervasive impairment of metabolic and reproductive functions.

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

Health agencies and regulatory agencies that set public safety standards for ELF-EMF and RFR should act now to adopt new, biologically-relevant safety limits that key to the lowest scientific benchmarks for harm coming from the recent studies, plus a lower safety margin. Most safety standards are a thousand times or more too high to protect healthy populations, and even less effective in protecting sensitive subpopulations.

NOTE: According to the **ICNIRP** (International Commission on Non Ionizing Radiation Protection) commission, which the WUTC relies on to set safe exposure levels to ELF and RF frequencies for the public around the world quotes: "It wishes to emphasize that dose constraints are not to be used or understood as prescriptive regulatory limits."

This statement is a bold example of how an independent research organization fails to take responsibility for the considered safe exposure levels they publish for the population. They post a figure from their studies yet the figure they state is not to be relied upon as a safe level. What good are they if the level of exposure they publish is relied upon by utility providers as a safe level? And utility providers claim the exposure levels from this organization's studies are safe and that then becomes the industry's standard knowing that this exposure level is 1000 times higher than it should be.

This puts the public at serious health risks and gives the utilities relying on an independent research commission plausible deniability for liability purposes.

The National Toxicology Program found a statistically significant increase in brain cancers from exposure to cell phone frequencies.

<http://ntp.niehs.nih.gov/results/areas/cellphones/index.html>

In 2015, 220 scientists who had published in peer-reviewed journals from 41 nations signed the International Scientists Appeal. Their warnings included cell

phones, infrastructure, Wi-Fi, 'smart' meter/grid technology, as well as devices like baby monitors and commercial broadcast uses. www.emfscientist.org

The BioInitiative report, updated in 2012 contains nearly 2000 papers reviewed by 29 international scientists from over 20 countries on the health and environmental effects of electromagnetic fields. Their conclusions note that the continued rollout of wireless technologies jeopardizes global health and recommends stricter biologically based standards, lower exposure limits, and a more cautious, science-based approach. www.bioinitiative.org

Unlike the microwave radiation that anti-"smart" meter advocates have been calling attention to for years, there is no scientific dispute regarding the biological effects of 2 to 50 kilohertz frequencies.

The World Health Organization (WHO) classifies wireless radiation as a 2B carcinogen, based on studies linking cell phone radiation to brain tumors! http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf Brain tumors are the leading cause of cancer-related deaths in children age 0-14 <http://www.abta.org/about-us/news/brain-tumor-statistics/>.

Not everything is known yet about this subject; but what is clear is that the existing public safety standards limiting these radiation levels in nearly every country of the world look to be thousands of times too lenient. Changes are needed.

Mid-course corrections have been needed ten years ago in the way we accept, test and deploy new technologies that expose us to ELF and RF in order to avert public health problems of a global nature.

New approaches are needed to educate decision-makers and the public about sources of exposure and to find alternatives that do not pose the same level of possible health risks, while there is still time to make changes.

Every day of delay will bring greater liability for the aforementioned corporations and agencies and the individuals involved. It's one thing to act in ignorance, quite another not to act once knowledge is received.

We urge this commission to challenge the electric utility companies and utility equipment manufacturing companies providing smart meter/advanced meters and related equipment to prove to this commission that the ELF and RF frequencies these devices emit throughout a home have been thoroughly researched and tested and to report those findings to a review board of independent engineers to review their findings.

There may be no lower limit at which exposures do not affect us. Until we know if there is a lower limit below which bioeffects and adverse health impacts do not occur, it is unwise from a public health perspective to continue "business-as-usual" deploying new technologies that increase ELF and RF exposures, particularly involuntary exposures. Several studies show cattle affected by environmental EMF

exposure. Cows align to geomagnetic field lines and are influenced by ELF EMF. We have also included studies that show the effects of RF signals on trees, insects and birds in the exhibits attached.

Every day of delay will bring greater liability for the aforementioned corporations and agencies and the individuals involved. It's one thing to act in ignorance, quite another not to act once knowledge is received.

As a public official it is your responsibility to be aware of what your constituents are communicating and to respond accordingly.

Whatever happens, we know this much: the American People are now waking up and thinking about this issue like never before, and rapidly gaining momentum.

We ask the WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION to take action to cease and desist any further installments of Smart Meters/Advanced Meters until the evidence can be examined and the true safety of all of the equipment be determined by a board of qualified, independent engineers, for example, Dr. Henry Lai. The question now for you to think about is which side of the fence are you choosing to put your oath of office behind?

We, as members of the Washington Jural Assembly, stand behind the comments made and the facts brought forward to this commission with all due respect. Exhibits are enclosed.

by: Randy Styer © LS

by: Teri Sahm © LS

by: Phyllis Brown © LS

by: Jack Fong © LS

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Exhibits

5G And The IOT: Scientific Overview Of Human Health Risks

AARP Comments on Consumers and Smart Grids

Assessment of Radiofrequency

Bioinitiative Research Summary

California Smart Meter Analysis 12-12

Doctors Consensus Statements

Electromagnetic Fields, Wireless and Cows

Environmental Health Trust Research on Bees, Butterflies and Wildlife

Final RF Charts – www.bioinitiative.org

Health Risks Posed by Smartmeters

International Precautionary Action - Environmental Health Trust

IOT Explained – Archetype

Scientist 5G Appeal

Scientists call for Protection from Non-ionizing Electromagnetic Field Exposure

Smart Meters - How they work and harm

US DOI Comments

Worlds Largest Animal Study on Cell Towers

Wireless Devices and Wildlife Silent Spring