

John Chenosky

04-08-24

To: rchiavetta@pa.gov
Subject: Docket No. C-2019-3007622 April 8 Exception

Dear Secretary Chiavetta:

As explained to you, my brief perusal of the subject docket in your E-File does not indicate the following was ever documented by administrative personnel. As a courtesy, I am providing copies of the following to recipients:

- 1 - June 1, 2020 Complainant's Direct Testimony ordered by DC ALJ Joel H. Cheskis un-redacted
- 2 - January 12, 2024 Justification for Indeterminate Stay as The PA PUC and All Utilities Conduct a Weaponization of the Pennsylvania Justice System Against ADA Compliance
- 3 - January 28, 2024 Weaponization of the Pennsylvania Justice System Against ADA Compliance EMF and Dirty Electricity Disabled
- 4- February 18, 2024 Removal of Tori Geisler as Counsel of record.

The problem is there was no stipulation as to appropriate addresses for all parties. For ALJ Conrad, previous mailings were returned as undeliverable.

In addition, it would appear that Met-Ed counsel is limited to Danial A. Garcia, as was recently indicated on his last filing that I was copied on.

Please verify my conclusions.


John M. Chenosky

DATE OF DEPOSIT

APR 8 2024

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

John M. Chenosky

v.

Metropolitan Edison Company

Docket No. C-2019-3007622

DATE OF DEPOSIT

APR 8 2024

CERTIFICATE OF SERVICE

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

I hereby certify that I have served a true copy of Defendant Metropolitan Edison in answer to Defendant's **INCOMPLETE NOTICE TO PLEAD OF SEPTEMBER 01, 2020 AND ITS PERJURED RESPONSE AND VIOLATION OF EVIDENCE RULES.**

I also certify that I served a true copy of a New Matter:

MOTION OF THE COMPLAINANT FOR INDETERMINANT STAY AS CHENOSKY SURREBUTTAL TESTIMONY ORDERED BY DC ALJ CHESKIS ON 26DEC19 WAS STAYED BY THE PA PUC AND NEVER ALLOWED COMPLAINANT OPPORTUNITY TO ANSWER, WHILE THE PA PUC AND ALL UTILITIES CONDUCT A WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE EMF AND DIRTY ELECTRICITY DISABLED, PROVIDING AMPLE JUSTIFICTION FOR A STAY.

Service by First Class Mail, postage prepaid, as follows:

Lauren M. Lepkoski
Tori L. Giesler
FirstEnergy Service Company
2800 Pottsville Pike
P.O. Box 16001
Reading, Pennsylvania 19612-6001

Conrad A Johnson, Adm. Law Judge
Pennsylvania Public Utility Commission
Piatt Place, Suite220
301 First Avenue
Pittsburg, PA 15222

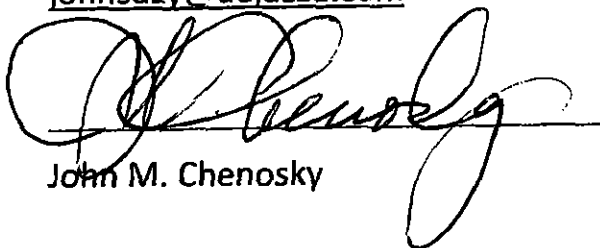
Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 172105-3265

John M. Chenosky
P.O.B. 423
Alburtis, PA 18011,6108450279

johnsuzy@dejazzd.com

Date: January 12, 2024

John M. Chenosky



John Chenosky

**PREHEARING CONFERENCE ORDER
FOR TELEPHONE CONFERENCE
MOTION FOR INDETERMINANT STAY**

TO ALL ADDRESSES:

I am in receipt of the subject with an impossible date of February 1, 2024 and the good cause for an in determinant timeframe follows. With an unprecedented third assigned ALJ with no explanation of the change, which I did not request and which I objected to in my email of November 21, 2022 to the PA PUC. No formal response was ever received.

For starters the Defendant never provided a complete Written Rebuttal (First Class Mail) required by Judge Cheskis in the written schedule below, lacking Exhibits JCA-1, JCA-2 & JCA-3. Without that information I cannot file a Formal Complaint against Defendants "expert" witness, John C. Ahr, before the Professional Compliance Officer of the Board of Professional Engineers.

My Formal Complaint against Defendant's "expert" witness, Ronald Long, Jr., P.E. has been received but a projected 9-12 month notice would not allow the evidence to be submitted.

As a *Stipulated Protective Agreement* that my wife and I would sign (not the Defendant's) was forwarded to ALJ Cheskis and the Defendant on December 13, 2019 and never signed and returned. A **CONFIDENTIAL OUTLINE** of my health records was included with that email and was the basis of Judge Cheskis' informed opinion that I could not participate in a normal procedure. Additionally HB974 proposed legislation amending the Right-To-Know Law to create a specific exception covering disability accommodations, exempts reference notes and working papers prepared by or for a public official or public employee that are used to accommodate an individual's disability. Commonwealth Court has concluded that Act 129 does not preclude accommodations of customers' health concerns, regardless of proof of harm. (Povacz et al. v. Pennsylvania Public Utility Commission, No. 492, C.D. 2019.)

Another issue that all the Utilities, the PUC and its agents avoid talking about is the unsupervised, illegal surveillance the Smart Meter software employs (never concocted by the Legislature). HB1278 has been introduced to amend Chapter 57 (*Wiretapping and Electronic Surveillance*) of Title 18 (*Crimes and Offenses*) of the Pennsylvania Consolidated Statutes, oftentimes referred to as the *Pennsylvania Wiretap Act*. Since its enactment, the Pennsylvania Wiretap Act and subsequent amendments have enabled prosecutors to obtain critical evidence for cases, while simultaneously respecting individual privacy. Utilizing this comprehensive statutory scheme in an era of increasingly complex communication provides the necessary guard rails of judicial oversight. A provision for unsupervised illegal surveillance the Smart Meter software employs needs to be added to this legislation.

I have yet to receive a transcribed Grievance Procedure and the ADA Compliance Officer for the PUC's Administrated Law Court, so I can file against AJG Watson who violated ADA Compliance and who contributed to my aggravated health while the Complaint was before him, ignoring the basic tenants of ADA Accommodation, and more importantly his lack of human decency.

- Making mistakes in following directions like “left, right, under and after.”
- Using a word that’s close to what you intend, but not the exact word; for example, saying “car” when you mean “truck.”

Global Aphasia

A stroke that affects an extensive portion of your front and back regions of the left hemisphere may result in Global Aphasia. You may have difficulty

- Understanding spoken words and sentences.
- Forming words and sentences in a reasonable timeframe or under stress.

Anomic aphasia:

People with this kind of aphasia struggle to find words, especially names of objects or words that describe actions. To get around this problem, they often use several words to explain what they mean or non-specific words like “thing” instead. If you cannot understand the above maybe this will help. <https://aphasia.org/stories/different-types-aphasia/>. Over the last thirty two years and the numerous strokes (4) I experienced elements of all Aphasia types but Expressive and Anomic still persist. It does not allow spontaneity in speech and comprehension compounded by my hearing deficit and many people’s speech (Valley Girl machine gun). All of this documented by several physicians and was used in a Social Security Judge’s favorable award of SSI benefits in 1994.

The other comorbidities described in the outline emailed to ALJ Cheskis, include four(4) degenerative discs that does not allow sitting for any length of time and chronic headaches and tinnitus interrupts any normal attention span. I would hope that any reasonable person understands these chronic maladies.

Update--- the stress induced and the time drafting this document sent my uncontrolled Blood Pressure this morning to stroke levels of 170/105.

Now since you have had this medical guideline information for over three(3) years and the technical expertise since 2019 do you really think your February 1, 2024 a realistic date?

Since a Smart Meter is NOT installed on either of my buildings I am in the process of obtaining an oscilloscope with a data logger to do background transient information. It should verify the “Dirty Electricity” causing my Nerve Block Malady. A Power Electrical Engineer, a PE, is excited about this testing and will oversee the operation. This exercise adds validity to an undetermined STAY time frame. A several months profile would be appropriate.

In March 5, 2009 the MADRI Steering Committee Meeting of Act 129 of 2008 issued an “*Overview and Implementation*” in which they altered the wording and intent of the law, Act 129 of 2008 and they set numerous objectives and benchmarks including affordable electric service. As my own benchmark would suggest that goal is a failure. In May 2022 residential rate was 6.83 c/ KWh and now the Defendant new rate is 11.306 c/KWh!! That is a 66% increase—SOME AFFORDABILITY. I am going to lists all of the requirements of ALL benchmarks and objectives and demand that you verify the results and be accountable.

It would appear to me as a Pennsylvania Professional Engineer that the PUC, Utilities and the PA Court System are living in an alternative reality, as they refuse to honor peer-reviewed INDEPENDENT studies about the mechanical deficiencies, fire safety and Biological Impacts of Smart Meters. The rest of the world operates on the Scientific Method of STEM scientific studies.

Yet this crowd who are STEM-deficient is leaving themselves liable knowing that over 20,000 studies (many Federal Government generated) are making them look agenized and not operating in the best interest of the Citizens of this Commonwealth, especially the disabled and EMF/RF sensitive.

Under Pre-Hearing Conference Order 22DEC23, Item 10, a *Pro Hac Vice* would have insufficient time or, technical or medical expertise to be effective representation.

**John M. Chenosky, PE
Pro Se Complainant**

SELF-EXPLANATORY EMAIL

From: Cheskis, Joel [<mailto:jcheskis@pa.gov>]
Sent: Monday, December 16, 2019 3:43 PM .
To: John Chenosky
Cc: llepkoski@firstenergycorp.com; tgiesler@firstenergycorp.com
Subject: RE: [External] Docket C-300-007622

Thank you for your email. I propose the following procedural schedule:

June 1, 2020 – pre-served written direct testimony from Mr. Chenosky
September 1, 2020 – pre-served written rebuttal testimony from Met-Ed
November 1, 2020 – pre-served written surrebuttal testimony from Mr. Chenosky

We can then discuss the procedure to follow at that time. My expectation, however, is that these pre-served pieces of written testimony will be admitted into the record with cross-examination waived and then I will render a decision based on that record. I intend to issue an order formalizing this schedule as soon as possible. I will also direct that I be copied on any discovery or other communications between the parties, except for settlement discussions, so that I keep stay on top of any problems that might arise, although, at this point, I expect that any discovery will be minimal.

Please let me know if you have any questions or concerns.

Thank you.

DATE OF DEPOSIT

BEFORE THE

APR 8 2024

PENNSYLVANIA PUBLIC UTILITY COMMISSION

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

John M. Chenosky

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v.

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Docket No. C-2019-3007622

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Metropolitan Edison Company

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CERTIFICATE OF SERVICE

I hereby certify that I served a true copy of Defendant Metropolitan Edison in answer to the NOTICE OF APPEARANCE, Dated January 31, 2024, regarding the removal of Lauren M. Lepkoski and enter the appearance Daniel A, Garcia, Esq. and James Austin Meehan, Esq. on behalf of the convicted racketeering organization, FirstEnergy Corporation, now representing the restructured Met-Ed Rate District (??) of such entity, i.e. FirstEnergy Pennsylvania Electric Company ("FE PA").

I also certify that I served a true copy of a NEW MATTER THE REMOVAL OF TORI GIESLER AS COUNSEL OF RECORD. GIESLER HAS PROVEN TIME AND AGAIN TO BE AS UNPROFESSIONAL, UNETHICAL, PERJURED AND COMPROMIZED ATTORNEY AS DISMISSED ATTORNEY LEPKOSKI. IT IS CLEAR BY THE EVIDENCE PRESENTED IN THE TEXT OF THIS NEW MATTER, AS WELL AS, THE COPIOUS EVIDENCE PROVIDED IN COMPLAINANT'S SURREBUTTAL TESTIMONY INCLUDING THE COMPLAINT(S) FILED WITH THE DISCIPLINARY BOARD OF THE SUPREME COURT OF PENNSYLVANIA CO-COUNSEL IS NOT FIT TO PARTICIPATE FURTHER.

Copies of this New Matter, i.e., Removal of Tori Geisler as Counsel of Record, have been served First Class Mail in accordance with this attached Certificate of Service.

Daniel A. Garcia, Att. No. 311503
FirstEnergy Service Company
800 Cabin Hill Drive
Greensburg, PA 15601
dgarcia@firstenergycorp.com

Conrad A. Johnson, Adm. Law Judge
Pennsylvania Public Utility Commission
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Pittsburg, PA 15222
cojohnson@pa.gov

James Meehan Att. No. 310442
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Reading, PA 19605
jameehan@firstenergy.corp.com

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17120-3265

John M. Chenosky
P.O.B 423
Alburtis, PA 18011
johnsuzy@dejazzd.com

Date: February 18, 2024

John M. Chenosky

I am in receipt of a Notice of Appearance from a FirstEnergy Corp. lawyer, a Daniel A. Garcia. The letter reminds me of the old Abbott & Costello funny skit called "Who's On First" <https://www.youtube.com/watch?v=82mlqZGRBz4>. In a First Class filing, signatures must be an original, not the electronic duplicate used in e-file, questioning this submission's legality.

The document also reminds me of the definition of the word "ambivalent"i.e. "watching your mother-in-law go over a cliff in your new Cadillac". And although it is somewhat successful in removal of an unethical, perjured, compromised attorney, it allows the other unethical, perjured, compromised attorney (Tag-Team participant) to serve as co-counsel which is unacceptable, and a Motion for her removal is forthcoming, First Class USPS filing.

Apparently I have to accept that this FirstEnergy Corporation is the same one that:

Former FirstEnergy Corp CEO Charles Jones and former senior vice president Michael Dowling "devised and orchestrated" a scheme in which the company paid millions of dollars to Ohio politicians in exchange for their support of legislation to benefit the company, according to an affidavit, opens new tab filed on Wednesday by shareholder lawyers in a derivative case against FirstEnergy's board members.

The Ohio nuclear bribery scandal (2020) is a political scandal in Ohio involving allegations that electric utility company FirstEnergy paid roughly \$60 million to Generation Now, a 501(c)(4) organization purportedly controlled by Speaker of the Ohio House of Representatives Larry Householder in exchange for passing a \$1.3 billion bailout for the nuclear power operator.^[1] It was described as "likely the largest bribery, money laundering scheme ever perpetrated against the people of the state of Ohio" by U.S. Attorney David M. DeVillers, who charged Householder and four others with racketeering on July 21, 2020.^[2] According to prosecutors, FirstEnergy poured millions into the campaigns of 21 candidates during the 2018 Ohio House of Representatives election, which ultimately helped Householder replace Ryan Smith as Republican House speaker.^[2]

AFTERMATH:

On June 16, 2021, members of the Ohio House of Representatives voted to remove Larry Householder from the House.^[13] The seat representing the 72nd House District was filled by Kevin D. Miller, a former State Highway Patrolman.^[14]

A year after the news officially broke about the scandal, on July 22, 2021, the U.S. Attorney for the Southern District of Ohio announced that FirstEnergy would be fined \$230 million for their part in it. Vipal J. Patel, the acting U.S. Attorney, said that this was the largest criminal fine ever collected by the Southern District.^{[15][16]} On December 30, 2022, FirstEnergy agreed to pay a civil penalty of \$3,860,000 to the United States Treasury.^{[17][18]}

In March 2023 Householder was convicted of participating in racketeering conspiracy^[19] and later that year sentenced to the maximum term of 20 years in prison.^[20]

We all know that Rep. Robert Godshall was influenced by the appointment of his son as PECO's Smart Meter guy. Who else was instrumental in changing the language of Act 129.....the MADRI Act 129 Steering Committee? I think it's time we audit the Pennsylvania promoters of this dangerous technology.

It's clear from my last Surrebuttal that Corruption at Metropolitan Edison is prolific. I'll offer additional evidence to support that conclusion. It probably stems from the FirstEnergy Culture of Corruption as described above. Thus Tori Giesler must be removed.

The fact that Giesler never followed former DC ALJ Cheskis' inquiry of April 27, 2020 regarding changing protocol for the duration of the Complaint, when Met-Ed's attempted to install a non-requested Smart Meter. Which, when confronted with the truth, fabricated a word salad story similar to the Ron Long lie described in additional testimony in his Complaint and addressed in her Disciplinary Complaint. An email trail confirms these events.

I request that there be estimated meter reading(s) based upon past electrical usage be employed before any other entry (meter reading), until DC ALJ Cheskis' order has been implemented. I do not want any other nefarious entry to illegally install a Smart Meter that I did not request on my property at 1000 Huffs Church Rd., District Township, Berks County Pennsylvania.

The mission of the Pennsylvania Public Utility Commission is to balance the needs of consumers and utilities; ensure safe and reliable utility service and protect the public interest; educate consumers to make independent and informed utility choices; further economic development; and foster new technologies and competitive markets in an environmentally sound manner. That is Lip service extraordinaire tripping my BS Meter.

You couldn't prove that by me and the other 107 Complainants still being deprived of their PA & USA Constitutional Rights.

In the beginning of this exercise I was threatened about the cut-off of my electrical service if I did not comply. Of course the Defendant's Lawyers emphatically denied that. Today rumor has it that the unethical attorneys have been heard boasting that they intimidated 5400 customers by threatening to cut off service, if they did not allow a Smart Meter on their properties. If true, these are criminal threats and illegal trespass. The lawyers need to be prosecuted.

Another rumor suggests that one of the unprincipled lawyers suggested "that the PA Senate does what it is told to do". INTERESTING since hearsay evidence is admissible.

**John M. Chenosky, PE
ADA Disabled Complainant**

John Chenosky

From: John Chenosky <johnsuzy@windstream.net>
Sent: Friday, February 09, 2024 1:51 PM
To: genebazan@aol.com; tania.slawecki@gmail.com; nancapcol@msn.com
Subject: FW: NOTICE OF APPEARANCE

From: John Chenosky [mailto:johnsuzy@windstream.net]
Sent: Friday, February 09, 2024 1:50 PM
To: rchiavetta@pa.gov; dagarcia@firstenergycorp.com; 'jameehan@firstenergycorp.com.'; jcheskis@pa.gov
Cc: crainey@pa.gov; cojohnson@pa.gov; dmaloney@pahousegop.com; tpennycuick@pasen.gov; WALSH, BOBBYGUNTHER
Subject: NOTICE OF APPEARANCE

RE: John Chenosky v. Metropolitan Edison Company
Docket No. C-2019-3007622

Secretary Chiavetta:

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This substitution and my ambivalence has tripped my BS Meter.

The mission of the Pennsylvania Public Utility Commission is to balance the needs of consumers and utilities; ensure safe and reliable utility service at protect the public interest; educate consumers to make independent and informed utility choices; further economic development; and foster new technologies and competitive markets in an environmentally sound manner. REALLY!!

You couldn't prove that by me and the other 107 Complainants still in limbo.

And the beat goes on.....Sonny & Cher (1967)

**John M. Chenosky, PE
ADA Disabled Complainant**

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

John M. Chenosky

v.

Metropolitan Edison Company

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:
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Docket No. C-2019-3007622

CÉRTIFICATE OF SERVICE

I hereby certify that I served a true copy of ALJ Conrad Johnson's initial decision with the EXCEPTIONS that are compiled in this EXCEPTIONS RESPONSE. The justification for the EXCEPTIONS are that the Docket No. C-2019-3007622 in review of Pennsylvania Utility Commission's website indicated that the file was incomplete. Complainant accessed this file for the first time this year. Security issues were evident when my Security Software Warnings were manifest in the hack of the PA Justice System in the recent past, which was why Complainant didn't use it. Recently I asked a colleague to view the file, and they could not find the information. What I found was that many of the documents which were provided via First Class Mail were missing.

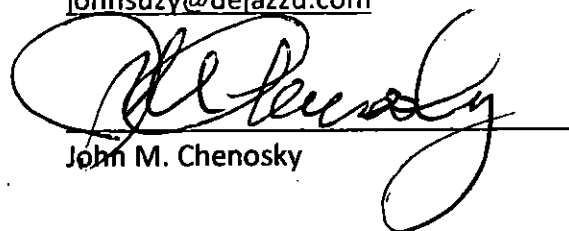
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Date: April 8, 2024



John M. Chenosky

DATE OF DEPOSIT

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PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

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DATE OF DEPOSIT

APR 8 2024

**PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU**

INTRODUCTION

The constitutional rights, as well as the most fundamental of human rights, of every Pennsylvanian are being systematically and ruthlessly trampled by an arrogant, out-of-control agency of the PA administrative state. The matter of particular concern here is the forced installation, with no opt-out, of radiofrequency radiation-producing, wireless 'smart meter' devices by the PA Public Utility Commission and the state's electric utility companies (EDCs – electric distribution companies). The assault by this alliance of government and industry on the rights of Pennsylvanians extends well beyond the increased risks to human health and public safety. Pennsylvania's citizens are being deprived even of the right to protect themselves from possible physical harm or the threat of harm posed by these wireless devices. Property rights and privacy rights also are being violated with impunity.

The matter of particular concern here is the forced installation, with no opt-out, of radiofrequency radiation-producing, wireless 'smart meter' devices by the PA Public Utility Commission and the state's electric utility companies (EDCs – electric distribution companies). The assault by this alliance of government and industry on the rights of Pennsylvanians extends well beyond the increased risks to human health and public safety. Pennsylvania's citizens are being deprived even of the right to protect themselves from possible physical harm or the threat of harm posed by these wireless devices. Property rights and privacy rights also are violated with impunity. In blatant violation of customers' property rights, the electric utility companies, pursuant to the PAPUC's policy of mandating the installation of smart meters, are furthering their commercial business interests by forcibly using customers' homes and properties with these devices for purposes other than the collection of electricity usage data from those properties. More specifically, the Commission's policy in effect requires that electric utility companies take, or seize, a property interest in customers' homes to site their wireless smart meters and use them as 'relay points' to receive and re-transmit data that does NOT originate from those customers' properties. Without customers' informed consent, the electric utility companies, acting with the imprimatur of the Pennsylvania Public Utility Commission, thus have been given an extra or augmented level of commercial usage of customers' homes and properties to which these companies are not lawfully entitled. (For a detailed explication of how the Public Utility Commission's state-wide smart meter mandate policy violates citizens' privacy rights, see pp. 309-365 and pp. 377-384 of the 'Amended Complaint' PDF which is available and downloadable here:

[https://drive.google.com/drive/folders/1MEppT6HqTZXQs7LqKoPvzfOSK5iqiRF?usp=sharing.](https://drive.google.com/drive/folders/1MEppT6HqTZXQs7LqKoPvzfOSK5iqiRF?usp=sharing))

In complete disregard of the written law set forth by the PA Legislature (viz., 66 PA.C.S. §2807(f)(2) in conjunction with §2807(f)(7) of the Public Utility Code), which expressly did not mandate smart meters, the PUC and the electric utility companies have proceeded to implement the Commission's legally baseless policy of mandating these devices -- with no exceptions even for people with hardships such as underlying medical conditions or physical disabilities or other extenuating circumstances. (See ATTACHMENT I: 'MATTERS OF LAW and OF FACT DERIVING DIRECTLY FROM THE LAW—ACT 129, 66 Pa.C.S. § 2807—AS WRITTEN', appended to this document.)

In a federal lawsuit brought by the Environmental Health Trust (EHT), et al., against the FCC, the U.S. Court of Appeals for the D.C. Circuit ruled that the FCC ignored scientific evidence and failed to

provide a reasoned explanation for its determination that its 1996 guidelines adequately protect the public against all the harmful effects of wireless radiation.

(<https://docs.fcc.gov/public/attachments/DOC-374936A1.pdf>). (See also ATTACHMENT III, appended to this letter.)

In fact, on September 25, 2008, at a U.S. House subcommittee hearing on cell phone radiation, Dr. Julius Knapp, then-Director of the Office of Engineering & Technology of the Federal Communications Commission, testified that: "The FCC staff is not sufficiently qualified to speak with authority to the science of health effects of RF absorption in the bodies—body." He further testified: "The FCC doesn't have the expertise to evaluate whether the standard is appropriate protection level for the cases that were discussed here."

Indeed, as demonstrated by an overwhelming preponderance of evidence, it is incontrovertibly the case that the FCC safety guidelines for RF exposure do NOT account for all possible mechanisms of interaction of RF with biological structures and systems. Furthermore, the science is compelling and settled beyond reasonable doubt that such interactions in fact can and do occur which do NOT involve thermal mechanisms or acute exposure to RF. (See ATTACHMENT II: 'Documented, Evidentiary Facts that Impugn the Safety and Reasonableness of Exposing the Public to Radio Frequency (RF) Radiation and Fields (Especially Without Their Informed Consent)', appended to this letter. See also ATTACHMENT III: 'Testimonies Given By Eminent Scientific And Public Health Experts On Matters Concerning Smart Meter Safety', also appended to this letter.)

66 PA.C.S. §315(c) states: "In any proceeding upon the motion of the commission, involving the service or facilities of any public utility, the burden of proof to show that the service and facilities involved are adequate, efficient, safe, and reasonable shall be upon the public utility.

"From the time beginning with its original smart meter implementation order, the Pennsylvania Public Utility Commission, contrary to its responsibility to the public as set forth under 66 PA.C.S. §315(c) of the Public Utility Code, has never placed 'the burden of proof' upon the electric utility companies to show that their smart meter facilities are safe and reasonable. These companies have never been required to provide definitive proof, by means of the production of independent, unbiased, entirely non-selective (non-'cherry-picked') and fully conclusive scientific evidence, that the pulse-modulated RF radiation and RF electromagnetic fields produced specifically by the operation of wireless smart meters do not and cannot cause biological or adverse health effects. According to 52 PA.C.S. § 57.28(a)(1), "An EDC must use reasonable efforts to properly warn and protect the public from danger and to exercise reasonable care to reduce the hazards to which customers may be subjected to by reason of the EDC's provision of electric utility service and its associated equipment and facilities."

Neither the PA PUC, nor the state's electric utility companies (EDCs), have ever properly warned the public of the safety hazards and possible increased risk of harm posed by smart meters such that customers could provide their informed consent to the installation of these devices on their homes and properties.

Under 66 PA.C.S. § 1501, moreover, public utilities are required to maintain safe and reasonable service and facilities for their customers. Specifically: "Every public utility shall furnish and maintain adequate, efficient, safe, and reasonable service and facilities, and shall make all such repairs,

changes, alterations, substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public. Incredibly, ignoring citizens' rights protected under both Pennsylvania and federal law, the PA PUC and electric utility companies are getting away with forcibly subjecting customers and the public to exposure to RF radiation and electromagnetic fields without any smart meter safety studies ever having been done and without there being any applicable safety guidelines whatsoever in place for their protection against the forms of radiation and EMFs produced these devices.

It follows that there is no reliable medical or scientific evidence upon which to conclude that chronic, long-term exposure to the radiofrequency radiation and RF fields produced by smart meters cannot, would not and will not cause, exacerbate or contribute to biological or adverse health effects. It further follows that the PUC and electric utility companies have no basis at all upon which to argue that forcibly exposing the public in perpetuity to any levels of RF radiation and/or RF fields produced by smart meters, and thereby possibly increasing their risks of adverse health effects and harm, is 'safe' or in any way 'reasonable'!

Hundreds of complaints have been filed with the PA PUC, but to no avail. All the while defending its absolutely tyrannical policy position on smart meters by holding up the utterly inapplicable FCC guidelines as the appropriate standard of safety, the Commission routinely has denied, blocked or ignored the mountain of medical and scientific evidence, including expert witness testimonies of medical doctors and scientists and the voluminous amount of peer-reviewed scientific research which, taken together, unequivocally impugn the safety and reasonableness of forcibly subjecting people in perpetuity to the RF radiation and electromagnetic fields produced by these devices as a condition of their having access to electricity.

The U.S. Supreme Court has held that electrical service is a necessity of modern life and an entitlement (*Fuentes v. Shevin*, 407 U.S. 67 (1972)), and that the discontinuance of utility service for even short periods of time may threaten health and safety. (*Memphis Light, Gas & Water Div. v. Craft*, 436 U.S. 1 (1978).)

Unconscionably threatened by the PUC and electric utility companies with the choice between either being forcibly irradiated in perpetuity with RF from their own homes, or being totally deprived of electricity, some PA citizens suffering severely from electro-hypersensitivity (EHS), a medically substantiated, adverse health condition, have had no alternative but to leave their homes and relocate to other states.

EXHIBIT 2.

Demonstration of direct, disruptive effect upon human heart function by operation of a wireless smart meter.

EXHIBIT 3.

Demonstration of direct and immediate, disruptive effect upon human heart function by a wireless device generating radiofrequency emissions at power density levels well below government safety

guidelines. (Note: Permissible RF radiation levels of Canada's 'Safety Code 6' are virtually equivalent to levels permitted by the FCC safety guidelines.)

The preceding demonstrations constitute visual, objective evidence of direct causation which *cannot be disproven or entirely explained away merely by resorting to oral or written testimony.*

The disruption and distortion of the test subjects' heart cycles during the operation of the smart meter in EXHIBIT 2 were readily detected and observed using electrocardiographic monitoring equipment. Given the subtle nature of these changes, the test subjects were completely unaware of their occurrence during the demonstration. One may surmise that it is quite possible—perhaps likely—that *most people would, under similar conditions, experience these kinds of neuro-cardiologic effects, which, for the large majority, might continue unnoticed even while imperceptibly, but gradually, worsening over time.* Certainly no one knows how long even a robustly healthy human heart could withstand this kind of chronic electromagnetic disruption before possibly sustaining permanent, irreversible damage.

EXHIBIT 5.

Demonstration of the introduction and propagation through a home's circuitry of conducted emissions of high-frequency voltage transients, or harmonics, specifically by the operation of a wireless smart meter.

Entirely consistent with both the law as written and the legislative intent of the PA General Assembly (which was attested to and affirmed by three PA senators who participated in constructing final amendments to the law, viz., Act 129), the PA Commonwealth Court, in its October 2020 ruling on this issue, concurred in no uncertain terms that there is nothing in the language of the law that mandates the installation of smart meters on the homes of customers who do not wish to be exposed to RF radiation, or who, for whatever other reason, do not consent to them. One would have to read text into the statute that is not already there to reach the Commission's conclusion that smart meters are mandatory. Moreover, according to the Court, customers were not required to establish proof of harm in order that they be granted accommodations by the PUC and the electric utility companies.

[https://cases.justia.com/pennsylvania/commonwealth-court/2020-607-c-d-2019.pdf?ts=1602181079.](https://cases.justia.com/pennsylvania/commonwealth-court/2020-607-c-d-2019.pdf?ts=1602181079)

The PA PUC and the electric utility companies therefore know, and have long known full well, that they actually have no basis in law to pursue their smart meter mandate agenda and that the FCC guidelines are abysmally inadequate and fail utterly to protect the safety of the public.

Nonetheless, after the Commonwealth Court's rebuke of the Public Utility Commission's policy mandating smart meters, the PUC appealed to the PA Supreme Court, which, not surprisingly, with what amounted to vacuous, disingenuous hand-waving, overruled the Commonwealth Court's decision and affirmed the PUC's abject misinterpretation of the law.

Consequently, this cabal of 'state actors', that is, the PA PUC and several of Pennsylvania's largest electric utility companies, is continuing relentlessly, 'under color of law', to engage in intimidation and coercion on a grand scale against the state's citizens.

In our view, the PA PUC and electric utility companies are completely disregarding the Americans with Disabilities Act (ADA) as well as blatantly violating the Fourth, Fifth, Eighth, Ninth and Fourteenth Amendments to Constitution of the United States, warranting causes of action justiciable under 42 USC Sections 1983, 1985(3), and 1986 and 18 USC Section 241.

The U.S. Supreme Court has held that Section 1983 provides for punitive damages. (Smith v. Wade, 461 U.S. 30, 103 S. Ct. 1625, 75 L. Ed. 2d 632 (1983).) Additionally, "[a] plaintiff is entitled to punitive damages if it is found that the defendant's conduct was reckless or callously indifferent to the federally protected rights of others. Such damages may be awarded even if the plaintiff cannot show actual damages (Basista v. Weir, 340 F.2d 74 (3d Cir. 1965).)"

Accordingly, before such time that we are compelled to pursue the filing of a federal class-action lawsuit as our last, best hope of finally ending the egregious, iron-fisted despotism of the Public Utility Commission and electric utility companies in Pennsylvania, we have sent this letter in order that you and all other members of the PA General Assembly shall have been duly informed with regard to the PUC's misguided policy of mandating statewide deployment of wireless smart meters and the utterly inhumane and unconstitutional burdens that such a policy imposes upon the rights, health and safety of Pennsylvania's citizens.

ATTACHMENT I

**MATTERS OF LAW and OF FACT DERIVING DIRECTLY FROM THE LAW—Act 129,
66 Pa.C.S. § 2807—AS WRITTEN:**

1. The exact language pertinent to this matter under 66 Pa.C.S. § 2807(f)(2) and § 2807(f)(7) and enacted into law pursuant to Act 129 is as follows (underlining, emphasis and italics added):

(2) Electric distribution companies shall furnish smart meter technology as follows:

(i) Upon request from a customer that agrees to pay the cost of the smart meter at the time of the request.

(ii) In new building construction.

(iii) In accordance with a depreciation schedule not to exceed 15 years.

(7) An electric distribution company may recover reasonable and prudent costs of providing smart meter technology under paragraph (2)(ii) and (iii), as determined by the commission. This paragraph includes annual depreciation and capital costs over the life of the smart meter technology and the cost of any system upgrades that the electric distribution company may require to enable the use of the smart meter technology which are incurred after the effective date of this paragraph, less operating and capital cost savings realized by the electric distribution company from the installation and use of the smart meter technology. ..

2. The law, as stated, directs electric utility companies (EDCs) simply to furnish—that is, to offer, provide, or make available—smart meter technology under the conditions specified by Provisions (i), (ii) and (iii) of § 2807(f)(2) and by § 2807(f)(7), supra.

3. Provision (i) of § 2807(f)(2) requires EDCs to furnish—to offer, provide, or make available—smart meter technology to customers who request such and who agree to pay the cost of the smart meters at the time of their requests.

4. Provision (iii) of § 2807(f)(2) requires EDCs to furnish—to offer, provide, or make available—smart meter technology in accordance with a maximum 15-year schedule of depreciation as set forth under § 2807(f)(7).

5. Act 129 contains no explicit language which states that EDCs must install AMI smart meters on homes or properties of customers who do not want or do not consent to them.

6. Act 129 contains no non-vague language which clearly and unambiguously implies or would imply that EDCs must install AMI smart meters on homes or properties of customers who do not want or do not consent to them.

7. Act 129 contains no explicit language which states that smart meters are mandatory or that customers cannot opt out of having AMI smart meters installed.

8. Act 129 contains no non-vague language which clearly and unambiguously implies or would imply that customers cannot opt out of having AMI smart meters installed.

9. There is no provision in the statute, Act 129, that explicitly disallows customers from 'opting out' of smart meter installation.

10. There is no non-vague provision in the statute, Act 129, which clearly and unambiguously disallows or would disallow customers from 'opting out' of smart meter installation.

11. The absence of explicit opt-out language in Act 129 does not logically entail, and is not necessarily equivalent or tantamount to, an automatic, universal opt-in.

12. The language expressed by Provision (i) of § 2807(f)(2) is explicitly opt-in language, making the choice of having a smart meter installed optional on the part of the customer.

13. The language of Provision (iii) of § 2807(f)(2) simply establishes a specified schedule, or limiting time frame.

14. Together, Provision (iii) of § 2807(f)(2) and Paragraph (7) of § 2807(f) specify clearly and unequivocally that it is the new AMI smart meter facilities and equipment, which, as the technology is implemented and made available to customers by their EDCs, are permitted to be depreciated over a period not greater than 15 years. (See ¶ 1, supra.

15. The facts asserted in ¶¶ 13 and 14, supra, are confirmation that Provision (iii) of § 2807(f)(2) has everything to do with placing a time limit on depreciation of new equipment, that is, of smart meter technology, as set forth under Paragraph (7) of § 2807(f), and nothing to do with establishing a mandate requiring system-wide implementation of AMI smart meter technology with no customer opt-out.

16. There is no non-vague language, explicit or implicit, clearly and unambiguously expressed in Provision (iii) of § 2807(f)(2) alone, or in conjunction or combination with § 2807(f)(1) and any other provision(s) of § 2807(f)(2), which definitively would establish the Commission's 'no opt-out' interpretation of that paragraph under Act 129 as a mandate expressing the legislative intent of the General Assembly.

17. House Bill HB 2200 (Printer's No. 4429 version dated Sept. 23, 2008), contains the following language which was stricken as shown:

Section 4. Section 2807(e) of Title 66 is amended by adding a paragraph to read:

§ 2807. Duties of electric distribution companies.

...

(ii) Electric distribution companies shall furnish smart meter technology to:

(A) Customers responsible for 40% of the distribution company's annual peak demand within four years after the effective date of this paragraph.

(B) Customers responsible for 75% of the distribution company's annual peak demand within six years after the effective date of this paragraph.

(C) One hundred percent of its customers within ten years after the effective date of this paragraph.

In the same Printer's No. 4429 document, the above language was changed to:

SECTION 3. SECTION 2807(E) OF TITLE 66 IS AMENDED AND THE SECTION IS AMENDED BY ADDING SUBSECTIONS TO READ:

§ 2807. DUTIES OF ELECTRIC DISTRIBUTION COMPANIES.

...

(2) ELECTRIC DISTRIBUTION COMPANIES SHALL FURNISH SMART METER TECHNOLOGY AS FOLLOWS:

(I) UPON REQUEST TO A CUSTOMER THAT AGREES TO PAY THE COST OF THE SMART METER.

(II) IN THE CONSTRUCTION OF A NEW RESIDENCE OR NEW BUILDING TO BE USED BY A COMMERCIAL CUSTOMER.

(III) IN ACCORDANCE WITH A SCHEDULE OF REPLACEMENT OF FULL DEPRECIATION OF EXISTING METERS.

The language of § 2807 thus had been changed at this point from the stricken

"(ii) Electric distribution companies shall furnish smart meter technology to: ... (C) One hundred percent of its customers within ten years after the effective date of this paragraph to

"(2) ELECTRIC DISTRIBUTION COMPANIES SHALL FURNISH SMART METER TECHNOLOGY AS FOLLOWS: ... (III) IN ACCORDANCE WITH A SCHEDULE OF REPLACEMENT OF FULL DEPRECIATION OF EXISTING METERS."

Immediately prior to the enactment HB 2200 into law as Act 129, Provision (III) in the language of the foregoing version was changed from

"(III) IN ACCORDANCE WITH A SCHEDULE OF REPLACEMENT OF FULL DEPRECIATION OF EXISTING METERS."

to

"(III) IN ACCORDANCE WITH A DEPRECIATION SCHEDULE NOT TO EXCEED 15 YEARS" as also stated in ¶ 18, *infra*.

Immediately prior to the enactment HB 2200 into law as Act 129, Provision (III) in the language of the foregoing version was changed from

"(III) IN ACCORDANCE WITH A SCHEDULE OF REPLACEMENT OF FULL DEPRECIATION OF EXISTING METERS."

to

"(III) IN ACCORDANCE WITH A DEPRECIATION SCHEDULE NOT TO EXCEED 15 YEARS" as also stated in ¶ 18, *infra*.

The phraseology of the earlier provision, "shall furnish smart meter technology to ... One hundred percent of its customers within ten years," may have implied a system-wide mandate. However, by amendment, this provision was stricken and replaced simply with a provision which at first allowed for depreciation of existing meters over an indefinite period. Then, with one final modification of the latter provision, a definite time limit of 15 years was instead set for depreciation of the new

AMI smart meters and, in accordance with Paragraph (7) of § 2807(f), was applicable specifically to the new AMI smart meters. Provision (iii) of § 2807(f)(2) therefore most clearly has everything to do with allowing for 15-year depreciation of new AMI smart meter equipment and nothing to do with establishing a mandate requiring system-wide implementation of AMI smart meter technology with no customer opt-out.

18. House Bill HB 2200 (Printer's No. 4526 version dated Oct. 7, 2008) thus includes the following language as further changed from that appearing in the Printer's No. 4429 version:

SECTION 3. SECTION 2807(E) OF TITLE 66 IS AMENDED AND THE SECTION IS AMENDED BY ADDING SUBSECTIONS TO READ:

§ 2807. DUTIES OF ELECTRIC DISTRIBUTION COMPANIES.

...

(2) ELECTRIC DISTRIBUTION COMPANIES SHALL FURNISH SMART METER TECHNOLOGY AS FOLLOWS:

(I) UPON REQUEST FROM A CUSTOMER THAT AGREES TO PAY THE COST OF THE SMART METER AT THE TIME OF THE REQUEST.

(II) IN NEW BUILDING CONSTRUCTION.

(III) IN ACCORDANCE WITH A DEPRECIATION SCHEDULE NOT TO EXCEED 15 YEARS.

This is the language of the final version of § 2807 of HB 2200 as amended by the Pennsylvania Senate. It is this version of § 2807 which is expressed in the exact language as that under § 2807(f)(2) of Title 66 of the Public Utility Code and which was enacted into law under Act 129.

19. In the Legislative Journal of the Pennsylvania Senate, dated October 8, 2008, at least three (3) Pennsylvania senators representing both major political parties are on public record as having stated explicitly that smart meters were not mandated. Consistent with the sequence in the series of changes made to the language of § 2807, as previously shown by the provisions stated in ¶¶ 17 and 18, supra, and consistent with the explicit statements made by these senators concerning the Senate's final amendments to HB 2200, smart meters were not and would not be mandatory, but were made optional to ratepayers. Specifically:

This is the language of the final version of § 2807 of HB 2200 as amended by the Pennsylvania Senate. It is this version of § 2807 which is expressed in the exact language as that under § 2807(f)(2) of Title 66 of the Public Utility Code and which was enacted into law under Act 129.

"It also contains language in there that we will have smart meters. It is not mandated, but it allows for the deployment of smart meters through a depreciation process, through new home construction process, and through the depreciation of 15 years, and for anyone who wants to purchase a smart meter which they feel will help them manage their electric load better."

—Senator Tomlinson (Senate Legislative Journal, p. 2626.) (Underlining and emphasis added.)

"We also made sure that smart meters would not be mandated for every single ratepayer. Not only is that a smarter approach to smart meter deployment, but it will also save electric customers

hundreds of millions of dollars paying for something that will not provide a real benefit in their own households."

—Senator Boscola (Senate Legislative Journal, p. 2627.) (Underlining and emphasis added.)

"In addition, we did not mandate smart meters, but we made them optional. We did say in new construction, where they really are practical, they will be put in."

— Senator Fumo (Senate Legislative Journal, p. 2629.) (Underlining and emphasis added.)

As thus amended by the Pennsylvania Senate on the matter concerning smart meters, the final version of HB 2200, with the amendments making smart meters non-mandatory, was passed by the Senate by an overwhelming majority of 47 to 3. (Legislative Journal - Senate, October 8, 2008, p.2631.)

The bill was then returned to the Pennsylvania House for a final vote. To the Speaker of the House's question: "Will the House concur in Senate amendments?", HB 2200 as amended by the Pennsylvania Senate was passed by the Pennsylvania House of Representatives by an *overwhelming majority of 186 to 4 such that "...the question was determined in the affirmative and the amendments were concurred in."* (Legislative Journal of the Pennsylvania House of Representatives, dated October 8, 2008, p. 2327.) (Underlining and emphasis added.)

HB 2200 was thus enacted by the Pennsylvania General Assembly and signed into law as Act 129 by then-Governor Rendell.

20. It is unequivocally clear that the prevailing legislative intent enacted into law by Act 129 expresses the Pennsylvania General Assembly's direction that smart meters were not, and would not, be made mandatory.

21. Nonetheless, according to the PA PUC, the PA Supreme Court, in its 'Povacz II' ruling (Aug. 2022), "found that Section 2807(f)(1), when read in conjunction with Section 2807(f)(2), provides instructions for furnishing smart meters to all customers." (PUC Public Meeting, Nov. 9, 2023.) However, the Supreme Court failed to fully and properly interpret the Legislature's clear direction set forth in Section 2807(f)(7) of Act 129.

HB 2200 was thus enacted by the Pennsylvania General Assembly and signed into law as Act 129 by then-Governor Rendell.

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ARGUMENTS and COMMENTARY

The policy of mandatory installation of AMI smart meters that has been adopted by the Pennsylvania Public Utility Commission and implemented by the electric utility companies is the product of a complete misinterpretation/misconstruction of the prevailing legislative intent of the Pennsylvania General Assembly as such was set forth and enacted into law under Act 129.

Accordingly, insofar as the enforcement of § 2807(f)(2) and § 2807(f)(7) under Act 129 were to have remained in keeping with the expressed, prevailing legislative intent of the General Assembly, the state's regulated electric utility companies have no basis in law, pursuant to Act 129 as written, to terminate electric service to customers who do not give consent to the installation of AMI smart meters on their homes or properties.

Furthermore, in the absence of a compelling governmental interest, the State is prohibited from making or enforcing any law such as Act 129 which would have the effect of depriving citizens of their fundamental rights protected under the Constitution of the United States. Even if the state were to have a compelling interest in having enacted Act 129, the law must be narrowly drawn such that the least restrictive means possible are used to achieve its objectives.

Despite the prevailing legislative intent of Act 129 which did not mandate smart meters, the fact that the language set forth in § 2807(f)(2) does not explicitly state that customers can opt out of having these meters installed has rendered Act 129 vulnerable to the misinterpretation and misconstruction that has resulted in the Public Utility Commission's present policy mandating smart meters.

Surmising and constructing its interpretation of Act 129 from the existing vagueness in the language set forth in § 2807(f)(2), while providing no more justification for having mandated smart meters than a tenuous belief, the Commission revealed its decision to introduce and impose its own meaning and intent into the law:

"The Commission believes that it was the intent of the General Assembly to require all covered [Electric Distribution Companies] to deploy smart meters system-wide when it included a requirement for smart meter deployment 'in accordance with a depreciation schedule not to exceed 15 years.'" (Public Utility Commission's Smart Meter Implementation Order.)

The Pennsylvania Public Utility Commission's policy mandating smart meters constitutes administrative overreach and was made possible only because of this vagueness in the language of § 2807(f)(2) when not read in conjunction with § 2807(f)(7). The Commission, however, is charged with implementing and enforcing the law as written and pursuant to its actual, legislated intent, not with second-guessing the expressed will of the Legislature to make new law.

Not only does the Commission's policy mandating smart meters not comport with the Overbreadth Doctrine set forth by the U.S. Supreme Court, but insofar as the language of § 2807(f)(2), when not read in conjunction with § 2807(f)(7), is vague, Act 129 is rendered vulnerable to such misconstruction and misapplication and thus would fail to comport with the Supreme Court's

Vagueness Doctrine which requires statutes to be clear and well-defined and to adequately describe or specify statutory regulations as to precisely what, under what conditions, and the means by which they are to regulate.

Therefore, because the Commission's policy mandating smart meters pursuant to Act 129 is predicated entirely upon § 2807(f)(2) in conjunction with § 2807(f)(1) and NOT in conjunction with § 2807(f)(7), and because it is excessively restrictive and harmful in its effect upon citizens' fundamental rights protected under the Fourth, Fifth, Eighth, Ninth and Fourteenth Amendments to the Constitution of the United States, the Commission's enforcement of this policy is, in and of itself, unconstitutional.

The state's electric utility companies therefore have no basis in law, pursuant to the Commission's policy mandating smart meters, to terminate electric service to customers who do not give consent to the installation of AMI smart meters on their homes or properties. It is the Commission's inherently unconstitutional policy of mandating smart meters that has opened the door to the wrongful and unlawful acts committed by the state-regulated electric utility companies, enabling them as 'State actors', or agents of the State, to implement their smart meter programs by means of harassment, threats, intimidation and coercion—all under color of law.

(END ATTACHMENT I)

ATTACHMENT II

Documented, Evidentiary Facts that Impugn the Safety and Reasonable Exposing the Public to Radiofrequency (RF) Radiation (Especially Without Their Informed Consent)

- 1) Based upon sufficiently strong evidence for increased risk of certain cancers, RF radiation and fields have been classified by the WHO / IARC (International Agency for Research on Cancer) as a possible human carcinogen (Group 2B). Moreover, this IARC classification applies to all RF radiation and fields, regardless of source.**

- 2) In its intensively peer-reviewed final report, the National Toxicology Program (NTP) of the National Institute of Environmental Health Sciences (NIEHS) and National Institutes of Health (NIH) published findings of "clear evidence" of cancer causation in animal test subjects exposed to RF radiation at 900 MHz, which very closely approximates one of the frequencies transmitted by AMI wireless smart meters.**

- 3) To forcibly subject persons to chronic, long-term exposure to a definitely possible human carcinogen is to forcibly subject them to chronic, long-term exposure very possibly to a definite human carcinogen.**

- 4) According to testimony given on October 6, 1987 at a subcommittee hearing of the U.S. House of Representatives by Sheldon Meyers, then-Director of the Office of Radiation Programs of the U.S. Environmental Protection Agency: "empirically, it is not possible to assign a low intensity limit or threshold below which the exposures are without effect." ... "The research information now available, both from EPA and others, demonstrates that biological systems do respond when exposed to ELF fields." (Underlining and emphasis added.)**

- 5) In a 2002 letter authored by Dr. Norbert Hankin, PhD, Center for Science and Risk Assessment, and Frank Marcinowski, Director, Radiation Protection Division of the U.S. Environmental Protection Agency, they state: "The FCC's current exposure guidelines, as well as those of the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-ionizing Radiation Protection, are thermally based, and do not apply to chronic, non-thermal exposure situations. They are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock and burn. ... The FCC's exposure guideline is considered protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified." (Underlining and emphasis added.)**

- 6) A study in New Zealand, referenced in a previous PA Public Utility Commission hearing and entitled: Health and Safety Aspects of Electricity Smart Meters, is an industry-sponsored report focusing primarily on a relative comparison between smart meters and cell phones with regard to RF emission levels. In fact, it is reported in this paper that: "research papers continue to be published concerning non-thermal, biological effects of SARs much lower than those specified in the standards, including by well-respected teams and individuals [Salford et al]. Many more such papers are listed in the WHO EMF project database." (Emphasis and underlining added.)**

7) The following are excerpts from a letter from Margot T. Oge, then-Director, EPA Office of Radiation and Indoor Air, to Thomas B. Stanley, Chief Engineer, FCC Office of Engineering and Technology, containing "Environmental Protection Agency (EPA) Comments to the Federal Communications Commission (FCC) on FCC 93-142, April 1993, Notice of Proposed Rulemaking; Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation."

"EPA does not agree with the claim that the 1992 ANSI/IEEE guidelines protect against effects of any mechanism; we believe that the only claim that can be made is that the 1992 ANSI/IEEE standard applies only to thermal effects and electric shock."

...

"The 1992 ANSI/IEEE conclusion that there is no scientific data indicating that certain subgroups of the population are more at risk than others is not supported by NCRP and EPA reports."

...

"Since the ANSI/IEEE hazard level is an SAR associated with an effect resulting from a known mechanism of interaction (RF heating) that is associated with an increase in body temperature (as is the NCRP hazard level), the ANSI/IEEE C95.1-1992 standard is based on a thermal effect of RF radiation and, by extension, is protective of effects arising from a thermal mechanism, but not from all possible mechanisms. Therefore, the generalization that 1992 ANSI/IEEE guidelines protect human beings from harm by any mechanism is not justified."

"EPA recommends against adopting the 1992 ANSI/IEEE standard because it has serious flaws that call into question whether its proposed use is sufficiently protective of public health and safety." (EPA recommendations to FCC, ET Docket No. 93-62.) (Underlining and emphasis added.)

8) Section 11.3.9 of the Handbook of Biological Effects of Electromagnetic Fields: Biological and Medical Aspects of Electromagnetic Fields (Third Edition, 2007), entitled Dosimetry for Induced Electric Fields, states in part:

"The biophysical lore prevailing until the late 1980s and lingering to this day is that, unless the amplitude and frequencies of an applied electric field were sufficient to trigger an excitable membrane (e.g., heart pacemaker), produce tissue heating, or move an ion along a field gradient there could be no effect. This was a formidable obstacle in the quest for therapeutic applications of weak EMF signals. However, this position had to be changed as the evidence for weak (non-thermal) EMF bioeffects became overwhelming. The clinical evidence offered by many double-blind clinical studies coupled with the database of hundreds of thousands of successful treatments of delayed and nonunion bone fractures registered with the FDA simply could no longer be ignored. Noninvasive PEMF treatment is actually as successful as the first bone graft to the huge benefit of the patient. The task now was to provide solid testable models for the biophysical mechanism of weak electric field bioeffects."

...

"Without resorting to signal processing or metabolic amplification, it is still necessary to attempt to understand the remarkable sensitivity of biological systems to weak electric fields." (Underlining and emphasis added.)

(This definitive, authoritative medical textbook on the biological effects of electromagnetic fields was edited by Dr. Frank S. Barnes, PhD, Electrical Engineering (Stanford University) and University of Colorado Distinguished Professor, and Dr. Ben Greenebaum, PhD, Physics (Harvard University),

University of Wisconsin Professor of Physics, and editor-in-chief of the international peer-reviewed scientific journal, Bioelectromagnetics. According to these scholars, who possess especially relevant qualifications and expertise, "This book contains information obtained from authentic and highly regarded sources.")

(END ATTACHMENT II)

**ATTACHMENT III
TESTIMONIES GIVEN BY EMINENT SCIENTIFIC AND PUBLIC HEALTH EXPERTS
ON MATTERS CONCERNING SMART METER SAFETY**

These documents are public documents on file with the FCC. They originally were filed under Maine PUC Docket No. 2011-00262. A number of them are among the exhibits in the Complainants' Amended Complaint and satisfy the evidentiary standards and criteria brought forth in that document, and/or the criteria given under 52 Pa. Code § 5.406(a)(1) and/or §5.406(a)(2) and/or Pa.R.E. 804(a) and/or 804(b), as highly relevant, highly credible and reliable evidence of definite probative value.

Close reading of these documents would make it abundantly clear to any rational, reasonable person that compelling scientific and medical evidence has shown it to be incontrovertibly the case and beyond reasonable doubt that RF radiation and electromagnetic fields (EMFs) produced by smart meters at levels below the current, long-outdated, FCC safety guidelines can, and do, cause adverse biological effects and pose very real and substantial risks to public health and safety.

<https://www.fcc.gov/ecfs/document/6017465448/1> Testimony of Dr. Lennart Hardell, MD, PhD (EXH. 1C)

<https://www.fcc.gov/ecfs/document/6017465448/3> Testimony of Dr. De-Kun Li, MD, PhD, MPH (EXH. 1F)

<https://www.fcc.gov/ecfs/document/6017465448/2> Testimony of Dr. Dariusz Leszczynski, PhD, DSc (EXH. 1E)

<https://www.fcc.gov/ecfs/document/6017465449/1> Testimony of Dr. David O. Carpenter, MD

<https://www.fcc.gov/ecfs/document/6017465450/2> Testimony of Dr. Jerry L. Phillips, PhD (EXH. 1D)

<https://www.fcc.gov/ecfs/document/6017465450/1> Testimony of Lloyd Morgan, BSEE (EXH. 1H)

<https://www.fcc.gov/ecfs/document/6017339058/2> Testimony of Dr. William J. Rea, MD

<https://www.fcc.gov/ecfs/document/6017465452/1>.Testimony of Girish Kumar, BSc, PhD

<https://www.fcc.gov/ecfs/document/6017465453/2> Testimony of Dr. Richard H. Conrad, PhD (EXH. 1G)

<https://www.fcc.gov/ecfs/document/6017465453/1> Testimony of Joshua Hart, MSc

To be sure, on August 13, 2021 the U.S. Circuit Court of Appeals for the District of Columbia ruled the FCC ignored scientific evidence and failed to provide a reasoned explanation for its determination that its 1996 guidelines adequately protect the public against all the harmful effects of wireless radiation. (<https://docs.fcc.gov/public/attachments/DOC-374936A1.pdf>).

**In that ruling, the Court stated:
[Begin quote]**

**In the Department of the Interior’s expert view, the Commission’s RF radiation limits “continue to be based on thermal heating, a criterion now nearly 30 years out of date and inapplicable today.” J.A. 8,383. “The [current environmental] problem,” according to the Department of the Interior, “appears to focus on very low-level, non-thermal electromagnetic radiation.” Id. Although the Commission has repeatedly claimed that it considered “inputs from [its] sister federal agencies[,]” 2019 Order, 34 FCC Rcd. at 11,689, the Commission entirely failed to address the environmental harm concerns raised by the Department of the Interior.
[End quote] (Emphasis added.)**

**"FCC limits are based on the outdated belief that heating is the only proven harm from RF. Over 11,000 pages of evidence - 447 exhibits in 27 Volumes - was submitted to the Court documenting biological effects and illness from wireless radiation exposure at non-heating levels. Research has found brain damage, headaches, memory problems, reproduction damage, synergistic effects, nervous system impacts, brain cancer, genetic damage, as well as harm to trees, birds, bees, and wildlife." (Environmental Health Trust, et al. v. FCC Factsheet)
The Court found that the FCC did not provide evidence of properly examining record evidence indicating non-cancer harm such as:**

**impacts to children
testimony of persons injured by wireless radiation
impacts to the developing brain
impacts to the reproductive system
impacts to wildlife and the environment**

(END ATTACHMENT III)

I. LEGAL STANDARDS

A. THE CONSTITUTION OF THE UNITED STATES, THE FOURTH, FIFTH, EIGHTH, NINTH, AND FOURTEENTH AMENDMENTS TO THE CONSTITUTION OF THE UNITED STATES

Article VI, Clause 3 of the United States Constitution states:

This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

The Supremacy Clause of Article VI of the U.S. Constitution mandates that states must provide hospitable forums for federal claims and the vindication of federal rights (*Felder v. Casey*, 487 U.S. 131, 108 S. Ct. 2302, 101 L. Ed. 2d 123 (1988)).

The Supremacy Clause establishes that the federal constitution, and federal law generally, take precedence over state laws, and even state constitutions.

In *Edgar v. MITE Corp.*, 457 U.S. 624 (1982), the Supreme Court ruled: "A state statute is void to the extent that it actually conflicts with a valid Federal statute".

The Fourth Amendment to the United States Constitution guarantees that:

"The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated "

The Fifth Amendment provides that:

"No person shall be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation."

The Eighth Amendment provides that:

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

The Ninth Amendment to the Constitution of the United States provides that:

"The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people."

The Fourteenth Amendment provides in part:

"No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws."

B. 50 U.S.C. 36, Subchapter I, §§ 1801(f), 1809(a), 1810, and 1812

Section 1801. "ELECTRONIC SURVEILLANCE" Definition—

...

- (1) the intentional acquisition by an electronic, mechanical, or other surveillance device of the contents of any radio communication, under circumstances in which a person has a reasonable expectation of privacy and a warrant would be required for law enforcement purposes, and if both the sender and all intended recipients are located within the United States;
- (2) the installation or use of an electronic, mechanical, or other surveillance device in the United States for monitoring to acquire information, other than from a wire or radio communication, under circumstances in which a person has a reasonable expectation of privacy and a warrant would be required for law enforcement purposes.

Section 1809. Criminal Sanctions

(a) Prohibited activities A person is guilty of an offense if he intentionally—

- (1) engages in electronic surveillance under color of law except as authorized by this chapter, chapter 119, 121, or 206 of title 18, or any express statutory authorization that is an additional exclusive means for conducting electronic surveillance under section 1812 of this title;
- (2) discloses or uses information obtained under color of law by electronic surveillance, knowing or having reason to know that the information was obtained through electronic surveillance not authorized by this chapter, chapter 119, 121, or 206 of title 18, or any express statutory authorization that is an additional exclusive means for conducting electronic surveillance under section 1812 of this title.

Section 1810. Civil Liability

An aggrieved person, other than a foreign power or an agent of a foreign power, as defined in section 1801(a) or (b)(1)(A) of this title, respectively, who has been subjected to an electronic surveillance or about whom information obtained by electronic surveillance of such

person has been disclosed or used in violation of section 1809 of this title shall have a cause of action against any person who committed such violation and shall be entitled to recover—

- (a) actual damages, but not less than liquidated damages of \$1,000 or \$100 per day for each day of violation, whichever is greater;
- (b) punitive damages; and
- (c) reasonable attorney's fees and other investigation and litigation costs reasonably incurred.

Section 1812. Statement of exclusive means by which electronic surveillance and interception of certain communications may be conducted

- (a) Except as provided in subsection (b), the procedures of chapters 119, 121, and 206 of title 18 and this chapter shall be the exclusive means by which electronic surveillance and the interception of domestic wire, oral, or electronic communications may be conducted.
- (b) Only an express statutory authorization for electronic surveillance or the interception of domestic wire, oral, or electronic communications, other than as an amendment to this chapter or chapters 119, 121, or 206 of title 18 shall constitute an additional exclusive means for the purpose of subsection (a).

C. EVIDENTIARY STANDARDS AND CRITERIA

Evidence is relevant if it tends to establish facts in issue. *LeRoi v. Pa. State Civil Service Commission*, 382 A.2d 1260 (Pa. Cmwlth. 1978).

"Commonwealth agencies shall not be bound by technical rules of evidence at agency hearings, and all relevant evidence of reasonably probative value may be received." 2 Pa. C.S. § 505.

The Pennsylvania Public Utility Commission, a Commonwealth agency, is not bound by technical rules of evidence at agency hearings and therefore may receive all relevant evidence of reasonably probative value. If the evidence is relevant to the issues before the agency and of reasonable probative value, the agency may receive it. 2 Pa. C.S. § 505.

Hearsay evidence may generally be received and considered during an administrative proceeding. See

A.Y. v. Commonwealth, Dep't of Pub. Welfare, Allegheny County Children & Youth Serv., 537 Pa. 116, 641 A.2d 1148, 1150 (1994).

Under the relaxed evidentiary standards applicable to administrative proceedings, as provided under 2 Pa. C.S.

§ 505, it is well-settled that simple hearsay evidence, which otherwise would be inadmissible at a trial, generally may be received into evidence and considered during an administrative proceeding. *D'Alessandro v. Pennsylvania State Police*, 937 A.2d 404, 411, 594 Pa. 500, 512 (2007).

Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Borough of E. McKeesport v. Special/Temporary Civil Serv. Comm'n*, 942 A.2d 274, 281 n.9 (Pa. Cmwlth. 2008).

Substantial evidence must be "more than a scintilla and must do more than create a suspicion of the existence of the fact to be established." *Kyu Son Yi v. State Bd. of Veterinary Med.*, 960 A.2d 864, 874 (Pa. Cmwlth. 2008).

In order for evidence relied upon in an administrative proceeding to be considered "substantial evidence," the ". . . information admitted into evidence must have sufficient indicia of reliability . . ." *Gibson v. W.C.A.B.*, 861 A.2d 938, 944, 580 Pa. 470, 480 (Pa. 2004).

To satisfy the requirement of authenticating or identifying an item of evidence ... "the proponent must produce evidence sufficient to support a finding that the item is what the proponent claims it is." Pa. R.E., Rule 901.

Evidence which is corroborated by any competent evidence in the record must be given its "natural probative" effect.

The Complainants have brought forth a voluminous amount of highly relevant, highly credible and reliable evidence of definite probative value that certainly meets the above criteria and which would constitute a preponderance of evidence, acceptable to any reasonable mind, that forced, chronic, long-term exposure, even at very low levels, to the radiofrequency radiation and RF fields produced by Met-Ed's Electric's AMI wireless smart meters poses a substantive risk to health and safety.

EXCEPTION I COMPLAINANT'S DOCUMENTS MISHANDLING, EDITING AND CENSURING BY PUC

The premise upon the INITIAL DECISION OF ALJ Johnson:

Notwithstanding the Commission's lack of authority to grant Complainant the relief he seeks, that is, to opt-out of the installation of a smart meter at the service address, this decision dismisses the Complaint alleging that the installation of a smart meter would aggravate Complainant's health conditions. The Complaint is dismissed for Complainant's failure (1) to comply with orders of the presiding officers and (2) to appear, without good cause, for the prehearing conference to prosecute his Complaint.

Apparently my Aphasia Disability and my spontaneous hearing and mental processing disabilities don't qualify for an ADA ACCOMODATION. The honorable judge or his ghost writer has never read any of the documents providing a much needed education in Aphasia Disability. It is apparent he and others is close-minded and incapable of dealing with victims with Disabilities. That goes double for Met-Ed lieers and executives. What do you expect when the Parent Company First Energy expends its time fraudulently bribing Legislators in Ohio? Begs the questions??

As this legal format is not involving damages access to 30 years of medical records are inappropriate. In numerous transmissions I provided a summation of my Medical History to all ALJ they were summarily dismissed.

Rules for HIPPA documentation:

HIPAA for Professionals

To improve the efficiency and effectiveness of the health care system, the Health Insurance Portability and Accountability Act of 1996 (HIPAA) (<https://aspe.hhs.gov/report/health-insurance-portability-and-accountability-act-1996>), Public Law 104-191, included Administrative Simplification provisions that required HHS to adopt national standards for electronic health care transactions and code sets, unique health identifiers, and security. At the same time, Congress recognized that advances in electronic technology could erode the privacy of health information. Consequently, Congress incorporated into HIPAA provisions that mandated the adoption of Federal privacy protections for individually identifiable health information.

- HHS published a final Privacy Rule (<https://www.hhs.gov/hipaa/for-professionals/privacy/index.html>) in December 2000, which was later modified in August 2002. This Rule set national standards for the protection of individually identifiable health information by three types of covered entities: health plans, health care clearinghouses, and health care providers who conduct the standard health care transactions electronically. Compliance with the Privacy Rule was required as of April 14, 2003 (April 14, 2004, for small health plans).

- HHS published a final Security Rule (<https://www.hhs.gov/hipaa/for-professionals/security/index.html>) in February 2003. This Rule sets national standards for protecting the confidentiality, integrity, and availability of electronic protected health information. Compliance with the Security Rule was required as of April 20, 2005 (April 20, 2006 for small health plans).

- The Enforcement Rule (<https://www.hhs.gov/hipaa/for-professionals/special-topics/enforcement-rule/index.html>) provides standards for the enforcement of all the Administrative Simplification Rules.

- HHS enacted a final Omnibus rule
(<https://www.hhs.gov/ocr/privacy/hipaa/administrative/omnibus/index.html>)

A suggestion was made about Tariffs when none exists that requires medical information needed to be provided to retain our Analogue Meter. Nor was there a justification for ratepayers that their utility with <100,000 clients were allowed to retain their analogue meters. Our civil rights have been violated.

The ALJ made the decision without acknowledging emails (especially those which did not fit the "smart meter" agenda) to all appropriate parties that would have provided the FACTS. The body of which was contained in January 28, 2024 Surrebuttal which was served in a timely manner to all parties with the possible exception of ALJ as it was it sent certified mail (I have the receipts and tracking information is available). The last time I looked at the PUC Website it was not filed in the Docket documents. A fresh copy will be distributed with attachments on April 8, 2024. But since the email of February 1, 2024 embodies the bulk of information (less attachments) it is produced as follows:

**SURREBUTTEL TESTIMONY PRESENTED IN ABSENTIA LESSS ATTACHMENTS IN TRANSIT
January 28, 2024**

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

John M. Chenosky	:	
	:	
v.	:	Docket No. C-2019-3007622
	:	
Metropolitan Edison Company	:	

CERTIFICATE OF SERVICE

I hereby certify that I have served a true copy of Defendant Metropolitan Edison in answer to Defendant's TESTIMONY ORDERED BY DC ALJ CHESKIS ON 26DEC19 WHICH WAS STAYED BY THE PA PUC AND ORDERED A PREHEARING CONFERENCE (AFTER 3 YEARS STAY), WITHOUT SUFFICIENT TIME FOR AN APPROPRIATE RESPONSE BY COMPLAINANT.

I also certify that I served a true copy of a New Matter:

COMPLAINANT CHENOSKY SURREBUTTAL TESTIMONY ORDERED BY DC ALJ CHESKIS ON 26DEC19 WHICH WAS STAYED BY THE PA PUC AND ORDERED A PREHEARING CONFERENCE (AFTER 3 YEARS STAY), WITHOUT SUFFICIENT TIME FOR AN APPROPRIATE RESPONSE BY COMPLAINANT.

WHILE THE PA PUC AND ALL UTILITIES CONDUCT A WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE EMF AND DIRTY ELECTRICITY DISABLED, AND NOT PROVIDE AMPLE TIME FOR RESPONSE AS OTHER COMPLAINANTS RECEIVED IS UNJUSTIFIED. PUC ALJS HAVE CONDUCTED AN ASSAULT ON ETHICAL PENNSYLVANIA PROFESSIONAL ENGINEERS AND AUTHORS OF TENS OF THOUSANDS OF STEM PEER-VIEWED SCIENTIFIC METHOD DERIVED

AUTHORITATIVE PAPERS, COUNTERING PUC'S INDUSTRY PROPAGANDA, INDICATING AS LEAST COGNITIVE DISSONANCE, IGNORING ESTABLISHED LAW, OR RAISE SUSPICION OF CRIMINAL BIAS.

Service by First Class Mail, postage prepaid, as follows:

Lauren M. Lepkoski
Tori L. Giesler
FirstEnergy Service Company
2800 Pottsville Pike
P.O. Box 16001
Reading, Pennsylvania 19612-6001

Conrad A Johnson, Adm. Law Judge
Pennsylvania Public Utility Commission
Piatt Place, Suite220
301 First Avenue
Pittsburg, PA 15222

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 172105-3265

John M. Chenosky
P.O.B. 423
Alburtis, PA 18011, 610-845-0279
johnsuzy@dejazzd.com.

Date: January 28, 2024

John M. Chenosky

INTRODUCTION

This is an incomplete attempt to file the **SURREBUTTAL TESTIMONY ORDERED BY DC ALJ CHESKIS ON 26DEC19 WHICH WAS STAYED BY THE PA PUC AND ORDERED AN UNREALISTIC TIMELINE PREHEARING CONFERENCE (AFTER 3 YEARS STAY), BY A NEW ALJ WITHOUT SUFFICIENT TIME FOR AN APPROPRIATE RESPONSE BY COMPLAINANT.**

IN ADDITION THE DEFENDANT MET-ED UTILITY NEVER PROVIDED A COMPLETE TESTIMONY WITH ALL EXHIBITS AS ORDERED BY DC ALJ CHESKIS ON 26DEC19, WITHOUT WHICH COMPLAINANT CANNOT COMPLETE THE SURREBUTTAL.

IT IS APPARENT THAT ALJ JOHNSON IS NOT INTERESTED IN PRECEDENTS SET BY DCAJ CHESKIS AND NOT INTERESTED IN UNDERSTANDING THE HISTORY OF THIS DOCKET BUT RATHER TO SWEEP THIS COMPLAINT ASIDE.

EVIDENCE SUBMITTED WITH THIS SURREBUTTAL- January 28, 2024

- **Amended Disciplinary Board Complaint against Lepkosi and Giesler Defendant's Attorneys of January 24, 2024 and the Statement of Complaint filed against Ronal C. Long, PE (Met-Ed's in house "expert" witness) with Exhibits.**

- Cover letter 18JAN24 The Disciplinary Board—Supreme Court of Pennsylvania District II Trooper PA with Complaint forms dated January 18, 2024.
- Email 07DEC23 to MDADA Coordinator “GRIEVANCE FROM DENIAL OF ACCOMODATION”
- Formal “Grievance from Denial of Accommodation” PUC Administrative Law Court “THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED “ 06DEC23.
 - Motion for Indeterminate Stay 12JAN24 “ THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM BY THE PUC & UTILITIES AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED.
 - Response to PA SILC request for Life Experiences of Pennsylvanians With Disabilities
- Email 29DEC23 Outlining the Criminal Assault by the PA PUC & Utilities Weaponizing the Pennsylvania Justice System Against ADA Complianance of EMF/Dirty Electricity Disabled. This includes Medical Outlines for Chenosky & Lane.

OLDER TESTIMONY EXHIBIT #1 (partial) the balance to be retrieved form PA PUC files:

ACCOMODATION OF OPT-OUT OF DIGITAL METERS EMF-EMITTING INVOICING TOOLS FOR PHYSICAL DISABILITY/MEDICAL CONDITION DUE TO PROLONGED EXPOSURE TO EMF MIROWAVE RADIATION AND TRANSIENT FREQUENCY AND STRAY CURRENT OF HAZARDOUS MUTIGROUNDED NEUTRAL OF WYE ELECTRICAL DISTRIBUTION SYTEMS DATED JUNE1, 2020 INCLUDING:

Significant evidence that was previously submitted needs to be included under this portion of the Complaint since the Defendant never answered any allegation just incompetent and illegitimate testimony from in-house shills.

IN ORDER OF SUBMISSION THESE DOCUMENTS INCLUDE:

Formal Complaint completed on PA PUC Standard Complaint Form, 29JAN19 including the following Exhibits:

- | | |
|------------|---|
| A-1 & 2 | Reasons for Complaint & Requested Relief |
| B-1, 2 & 3 | PA PUC Informal Complaint Form Sent 27/DEC18 |
| C-1 & 2 | PA PUC “Smart Meter Q&A” Propaganda |
| D-1 | Email to Complainant’s PA Rep. David A. Maloney Sent 04JAN19 |
| E-1 | Respondent Unspecified Notification Letter |
| F-1 | Complainant’s NO TRESPASS/NO INSTALL SMART METER email/letter |

Answer and Objection to New Matter & Preliminary Objection of Metropolitan Edison to the Complainant John M. Chenosky to the PA Public Utility Commission
 Answer to New Matter—Legal Insufficiency, 29MAR19.

Objections to Interrogatories and Objections to Requests for Production of Documents of Metropolitan Edison Company to John M. Chenosky, Set 1, 18JUL19.

Answer to Set 1 Interrogatories and Production of Documents to Metropolitan Edison Company from John M. Chenosky, 18JUL19.

Including the following Exhibits:

ATI- 1a-g Petition: 26,000 Scientists Oppose 5G Roll Out, Principia Scientific International, 03JUN19. Note now approaching 250,000 signatures.

ATI- 2a-h Reported Biological Effects from Radiofrequency Radiation at Low Intensity Exposure (Cell Tower, WiFi, Wireless Laptop and "Smart" Meter RF Intensities)

ATI- 3a-b 11APR19 Email to PA Legislators, "Pollution Collusion-Biological Effects EMF from Smart Meters."

Objections to Metropolitan Edison Company Motion to Compel of July 29, 2019 and Motion to Dismiss Motion to Compel of July 29, 2019 as Submitted by Defendant Metropolitan Edison, 16AUG19.

Answers t Interrogatories Posed (ATI) by Defendant Metropolitan Edison to Complainant John M. Chenosky, Set 1 Amended

Including the following Exhibits:

Exhibit "X" Petition International Appeal Stop 5G on Earth and in Space

Exhibit "Z" Eight Repeatedly Documented Findings Each Show that EMF Safety Guidelines Do Not Predict Biological Effects and Are, Therefore Fraudulent: Martin Pall.

Motion of the Complainant to Compel Responses from Metropolitan Edison Company to Answer All Scientific Information Provided by the Complainant that Smart Meter Technology is flawed. And provide Evidence that the PA PUC and Defendant Metropolitan Edison used to Insure the Safety of the Children and Citizens of the Commonwealth, 21SEP19. Certificate of Service was never dated due to inadequate time established by the then ALJ and the Aphasia Limitations of the Complainant. This Testimony is on file with PUC as well as other Testimony.

All of these complaints are important elements of this Docket moving forward, over which I have no control over the timing. ALL of the Documents you already have in your possession are hard copied and as I understand it, are posted to the PUC's e-service according to the PUC's Secretary, thus satisfying that requirement.

In my opinion Judge Cheskis already established the precedent under his ADA ACCOMODATION, i.e., written testimony as dictated in the above procedure and was the result of his letter (your Item #8, Attachment "A"). Is there anybody in your Administrated Law Court that can read English and that can follow the dots??? SCHEDULING ORDER December 26, 2019. Cheskis took the time to

understand the Disability of Anomic & Expressive Aphasia, one of many co-commodities that will not permit Complainant's active participation and ONLY WRITTEN TESTIMONY.

In Docket C-2019-30104437 there is yet another ruling, by Deputy Chief ALJ Cheskis that sets precedents, and again, sets an example that all the ALJs should follow as well. Answers that Complainant did provide in Discovery were sufficient for a Pro Se.

This last ruling incorporates the spirit of the first ruling and so much more. In this ruling, Cheskis allows all 13 of Complainant's exhibits over the objections of PPL for all the possible reasons PPL could make regarding the rules of evidence/admissibility. Complainant did not have any witnesses.

Also Cheskis mentions that it is not uncommon in an administrative law setting for hearsay rules to be relaxed (see pg. 6,); Commission regulations are to be liberally construed ...especially with regard to Pro Se litigants (pg.3); and hearsay, authenticity and reliability would not be used to preclude the admission of the exhibits into the record of this proceeding.

In this Docket, Complainant is his own "Expert Witness" with 21 years of formal education, .i.e. twelve years of 1-12 (50s & 60s) and earned Academic Diploma when we actually learned the STEM prerequisites for College entrance, not the education you youngsters apparently missed out on. Nine (9) years of STEM University education with a BS ChE (Chemical Engineering) Degree (1st in my major) with over 50 years of continuing education in all fields, being a scientist first and a Professional Engineer in four States (2-retired), most importantly in Pennsylvania (1975). Successfully ran a design-build Engineering business with numerous Fortune 500 companies and Government Agencies as clients. Over that time my firm specialized in Air & Water Pollution Control and Pharmaceutical Design even completed the design of a Tertiary Ash Collection System for the U.S. Coal Power Plant working with the Architect of the Capitol in the 80s. Over the last five years acquired extensive experience on the negative effects of Smart Meter Technology, i.e., fire safety, EMF/RF effects on DNA and the accelerated diseases of the Digital Age.

Most importantly the ALJs continued assault on the credentials of Ethical Pennsylvania Professional Engineers needs to be remedied.

Defendant's Attorneys and "expert witness," by ignoring the science of bioengineering are complicit /guilty of crimes against humanity as defined by the Nuremberg Code, the Helsinki Accord and the Federal Policy for the Protection of Human Subjects ('Common Rule') by subjecting their customers to the experiment of Smart Meter Technology. HHS Regulations 45 CFR part 46, and four subparts.

Based upon the position of the Pennsylvania Public Utility Commission and the actions of its agents, it would appear they are equally complicit/guilty of these crimes.

It would appear to the Complainant as a Pennsylvania Professional Engineer, that the PUC, Utilities and the PA Court System are living in an alternative reality, as they refuse to honor INDEPENDENT

studies about the mechanical deficiencies, fire safety and Biological Impacts of Smart Meters. The rest of the world operates on the Scientific Method of STEM peer-reviewed scientific studies. Yet this crowd who are STEM-deficient is leaving themselves liable, knowing that over 20,000 studies (many Federal Government-generated) are making them look agenized and not operating in the best interest of the Citizens of this Commonwealth, especially the disabled Dirty Electricity and EMF/RF sensitive victims and more importantly, the children who don't have a voice.

Noting the appearance of the PA PUC's ALJs changing the rules in the middle of the game, Complainant insists that the current prevailing ALJ Johnson follow the precedent of the SCHEDULING ORDER OF DECEMBER 26, 2019 , issued by Deputy Chief Administrative Law Judge Joel H. Cheskis, requiring written testimony-- not requiring in-person or phone communication of any kind. DC ALJ Cheskis also advise that the parties are encouraged to engage in settlement discussions as early as possible. There was no movement from the Defendant in over three (3) years. Possibly the Defendant Utility must have had some inside information?

Respectfully,

John M. Chenosky, PE
Complainant

PS: My apologies for any grammatical or spelling errors (Aphasia) due to the unrealistic Surrebuttal submission time demanded by the PA PUC's Pittsburg Office of the ALJ. No apologies for the free acerbic wit.

The ALJ erred in failing to consider the FACT that the Commission's policy mandating universal installation of smart meters, would force the Complainants' properties to be used by Met-Ed Electric for purposes other than the collection of the Complainants' electricity usage data. That is, the Commission's policy would allow Met-Ed Electric Utilities to forcibly use its AMI wireless smart meters on the Complainants' homes as "relay points to transmit data" that does not originate from the Complainants' properties.

In other words, Met-Ed Electric is using customers' homes and properties for purposes other than the collection of the customers' electricity usage data. That is, the Commission's policy would permit Met-Ed Electric Utilities to forcibly use its AMI wireless smart meters on the customers' homes as "relay points to transmit data" that does not originate from the customers' properties.

EXCEPTION II COMPLAINANTS PROPERTY RIGHTS VIOLATIONS

MET-ED VIOLATION OF PROPERTY RIGHTS PURSUANT TO THE COMMISSION'S POLICY-MANDATED INSTALLATION OF SMART METER DEVICES

Without the Complainants' consent and without due process of law, neither Met-Ed Electric Utilities, nor the Pennsylvania Public Utility Commission, nor the Commonwealth of Pennsylvania has the statutory authority or right to seize, take, require, or forcibly make use of the Complainants' homes or properties for any purpose or in any manner or with any equipment, devices or facilities of any kind which have never been studied specifically for possible biological or adverse health effects and which never have been granted by easement, siting permit or license.

Because, in direct violation of the Complainants' rights protected under the Fourth, Fifth, Eighth, Ninth and Fourteenth Amendments to the Constitution of the United States, enforcement by the Commission of its policy mandating smart meters pursuant to Act 129 ultimately requires, as a condition of the Complainants' having access to electric service, that Met-Ed Electric Utilities in effect seize, take and/or forcibly make use of the Complainants' properties in a manner and with kinds of devices and facilities that not only never have been granted by easement, siting permit, license, or the Complainants' consent, but also never have been studied specifically for possible biological or adverse health effects, it is, in accordance with the Pennsylvania Constitution and the laws, statutes and Constitution of the United States, lawfully binding and incumbent upon the Commission to grant relief to the Complainants.

4. Title 52 of the Pa. Consolidated Statutes § 56.81(3) and Title 66 § 1406(a)(4) apply to meters, only to meters, and to nothing but meters, that is, to devices with the functional capability of doing nothing more or other than to measure electric power usage such that electric utility companies are able to bill according to the actual amount of electricity used. These statutes do NOT apply to powerful, RF radiation-emitting and RF signal-transmitting antennas or to whatever multiplicity of devices the State and/or electric utilities may decide to package together and conveniently call a 'meter'.

5. Pursuant to Title 52 of the Pa. Consolidated Statutes § 56.81(3) and Title 66 § 1406(a)(4), PPL has threatened to terminate the Complainants' access to electric service solely on the basis of our not giving consent to the Company's installation of AMI wireless smart meters on our homes. Under these statutes, a termination of service is authorized for a customer's "[f]ailure to permit access to meters, service connections or other property of the public utility for the purpose of replacement, maintenance, repair or meter reading.

IV. SUMMARY

The right to protect oneself from harm, possible harm, and/or risk of harm is the most fundamental of individual liberties without which health, happiness and the enjoyment of life would be unduly burdened and unjustifiably made difficult or impossible.

The picture emergent from the pattern established by these proceedings vividly illustrates why no government, and no persons, regardless of what they may be persuaded to believe, should have the authority or wield power so profound as to have determination and control over matters of

health and well-being of others so as to decide even the conditions under which they must live in their own homes. For if those with such power are wrong in their belief, they shall have been party to the commission of a terrible injustice and moral crime against their fellow human beings in the misguided exercise of that power.

In support of the Exceptions brought forth before the Commission, the Complainants assert the following:

4. Title 52 of the Pa. Consolidated Statutes § 56.81(3) and Title 66 § 1406(a)(4) apply to meters, only to meters, and to nothing but meters, that is, to devices with the functional capability of doing nothing more or other than to measure electric power usage such that electric utility companies are able to bill according to the actual amount of electricity used. These statutes do NOT apply to powerful, RF radiation-emitting and RF signal-transmitting antennas or to whatever multiplicity of devices the State and/or electric utilities may decide to package together and conveniently call a 'meter'.

5. Pursuant to Title 52 of the Pa. Consolidated Statutes § 56.81(3) and Title 66 § 1406(a)(4), Met-Ed has threatened to terminate the Complainants' access to electric service solely on the basis of our not giving consent to the Company's installation of AMI wireless smart meters on our homes. Under these statutes, a termination of service is authorized for a customer's "[f]ailure to permit access to meters, service connections or other property of the public utility for the purpose of replacement, maintenance, repair or meter reading."

6. The Complainants have never denied Met-Ed Electric Utilities access to the company's meter for any purpose that is properly and conclusively proven to be safe and which would not deprive or be in violation of the Complainants' fundamental rights. This includes allowing Met-Ed access for the purpose of replacement of the meter.

7. The Complainants simply have denied the company permission to install a powerful, FCC-regulated, RF radiation-emitting and RF signal-transmitting device which is far more than merely a meter and for which there is no reliable medical or scientific evidence upon which to conclude that chronic, long-term exposure to the radiofrequency radiation and RF fields produced as a result of the installation of such metering devices could not, cannot, would not and will not cause, exacerbate or contribute to biological or adverse health effects.

8. In its actions to compel the Complainants' consent by means of threats and coercion, while also acting pursuant to the Commission's policy mandating wireless smart meters, PPL has acted under color of law as an agent of the State and is, according to the U.S. Supreme Court's State Action Doctrine, a 'State actor'.

9. Met-Ed's actions pursuant to the Commission's policy of mandating the installation of smart meters would force the Complainants' properties to be used by Met-Ed for purposes other than the collection of the Complainants' electricity usage data. That is, the Commission's policy would allow Met-Ed to forcibly use its AMI wireless smart meters on the Complainants' homes as "relay points to transmit data" that does not originate from the Complainants' properties. Met-Ed, acting with the imprimatur either of the Commission or of the State itself, thus would be given usage of the

Complainants' properties without such usage having been granted either by the existing easement or by the Complainants' informed consent. Met-Ed's actions and the Commission's policy pursuant to Act 129 therefore violate the Complainants' property rights protected under the Fifth and Fourteenth Amendments to the Constitution of the United States.

10. Met-Ed's Electric Utilities does not have the statutory authority or right to site powerful, radiofrequency radiation-producing, RF-transmitting, data communications devices on the Complainants' properties and to thereby physically affect or cause physical alteration to the interior environments of the Complainants' homes by means of the production of RF electromagnetic fields, and/or conducted emissions ('high-frequency voltage transients') and/or frequent transmissions of modulated radiofrequency radiation w already-existing RF radiation burden from other outside sources including area cell phone towers and nearby meters and facilities in the utility company's AMI mesh network.

11. Without the Complainants' consent, Met-Ed Electric Utilities does not have the statutory authority or right, pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), to use the Complainants' homes, and by and through such direct use of the Complainants' own premises, physically alter their living environments in any way which possibly could increase their risk of sustaining biological or adverse health effects.

12. Without the Complainants' consent, Met-Ed Electric Utilities does not have the statutory authority or right, pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), to use the Complainants' homes, and from their own premises, irradiate them in perpetuity as a condition of their continuing to have access to electric service. already-existing RF radiation burden from other outside sources including area cell phone towers and nearby meters and facilities in the utility company's AMI mesh network.

13. The findings by the WHO / IARC (International Agency for Research on Cancer), on the basis of sufficient scientific evidence that RF radiation is a Group 2B, possible human carcinogen, coupled with the findings reported in the highly peer-reviewed, final report of the U.S. National Toxicology Program (NTP) of "clear evidence" of cancer causation in animal test subjects as a result of their exposure to RF radiation, establishes RF radiation as an agent that is capable, through mechanisms other than the thermal heating of tissues, of adversely affecting biological systems at non-thermal levels, that is, at levels below the FCC safety guidelines.

14. To forcibly subject persons to chronic, long-term exposure to a definitely possible human carcinogen, is to forcibly subject them to chronic, long-term exposure very possibly to a definite human carcinogen.

15. Without the Complainants' consent, Met-Ed Electric Utilities does not have the statutory authority or right, pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), to use Complainants' homes in such a way as to irradiate them in perpetuity from their own premises with what has been found by IARC, on the basis of sufficient scientific evidence, to be a Group 2B possible human carcinogen.

16. Without the Complainants' consent, Met-Ed Electric Utilities, acting pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), has no statutory authority or right, by the company's use of Complainants' homes or properties, to increase the Complainants' risk—no matter how small—of biological or adverse health effects as a condition of their having access to electric service.

17. Without the Complainants' consent, the Pennsylvania Public Utility Commission, acting pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), has no statutory authority or right, through Met-Ed Electric Utilities' use of the Complainants' homes or properties, to increase the Complainants' risk—no matter how small—of biological or adverse health effects as a condition of their having access to electric service.

18. Met-Ed's use of RF-emitting, wireless smart meter devices, in forcibly subjecting the Complainants in perpetuity to the hazards and risks that much scientific research has found to be associated with RF radiation and RF fields, would deprive the Complainants of their most fundamental and basic human right to act to protect themselves from harm, possible harm, and/or risk of harm and so would violate this right which is protected under the Ninth and Fourteenth Amendments to the Constitution of the United States.

19. As clearly enunciated by the U.S. Supreme Court, electricity is a necessity of modern life, and PPL's action to terminate the Complainants' access to electric service, solely on the basis of the Complainants not consenting to the installation of wireless smart meter devices on their homes or properties, would constitute a cruel and unusual punishment and would violate the Complainants' rights protected under the Eighth and Fourteenth Amendments to the Constitution of the United States.

20. Met-Ed's collection, at intervals of 15 minutes or less and through the use of smart meter technology, of aggregate quantities of more of the Complainants' usage data than is customary and minimally necessary for generating a monthly bill constitutes a search under the Fourth Amendment. PPL's 24/7 collection of the Complainants' data, which is mandated to occur at intervals of 15 minutes or less with no lower limit, and such that, without the Complainants' consent, their data may be shared by Met-Ed with third parties who may de-anonymize and disaggregate that data, constitutes an abridgement and deprivation of the Complainants' Fourth Amendment right to a reasonable expectation of privacy.

From the fact of its having appealed the Commonwealth Court's detailed and very well-reasoned decision in Povacz to the PA Supreme Court, it has become even more obvious that the PUC's primary interest regarding these matters certainly has NOT been the protection of public health and safety. Rather, the Commission's primary concern has continued to be the protection of other interests by its having acted with extraordinary insistence and tenacity to preserve, at all costs, its misguided smart meter policy, which was based upon the Commission's own manifestly flawed interpretation of the legislative intent of the Pennsylvania General Assembly as such had been set forth and expressed in the language of Act 129. As demonstrated by an abundance of facts and deeds, the Pennsylvania Public Utility Commission heretofore has thus shown itself to exemplify the very definition of 'captured agency.'

EXCEPTION OF COMPLAINANT IN TOTAL INITIAL DECISION III

In Docket C-2019-3007622 on the PA PUC's E-FILE website, Complainant accessed this file for the first time this year. Security issues that were evident when my Security Software Warnings were manifest in the hack of the PA Justice System in the recent past which was why Complainant didn't use it. Recently I asked a colleague to view the file they could not find information. What I found, or didn't was that many of documents which were served First Class Mail were missing. Incompetence? Unauthorized editing? Censorship? All of the above.

In viewing cases that are still pending some as long as 8 years (ours 5 years this December) what I find is the same nonsense that I have experience the last 30 years with the Climate Agenda and the last 5 years (or more) with the WuWHOFlu (otherwise known as COVID FEAR PORN).

How a Public organization in my State has abandoned its Mission Statement to engage in what I have coined "*SMART METER COMMUNISM*" is beyond the pale. It reminds me of the seminal work of Nuclear Engineer Robert Zubrin in "*MERCHANTS OF DESPAIR....Radical Environmentalists, Criminal Pseudo-Scientists, and the Fatal Cult of Antihumanism*". The book describes how we got to this Echo Chamber of Eugenics in the "*Club of Rome*" Malthus Acolytes and the Paul Ehrlich Population Boom Theory. I'd provide links but that's your homework assignment.

Smart Meter Technology was never needed unless the E-Lites needed to CONTROL the ENERGY and disassemble the middle class (in process) as started under Barry Sotero (AKA Barack Obama), and continued under this current BANANA ADMINISTRATION. I call it FEUDALISM 2.0. So we needed a Boogeyman (championed by Al Gore who made hundreds of millions as an Oil Hypocrite) so gov't trough feeder Pseudo-Scientists invented carbon dioxide (CO2) the most benign compound on the biosphere as the cause of Catastrophic Anthropogenic Global Warming (CAGW). Funny thing CO2 is the gas of life without which LIFE CANNOT EXIST!! Man-made CO2 has NO SIGNIFICANT EFFECT ON THE CLIMATE—WE NEED MORE CO2—NOT LESS. There was never a Scientific Basis for the current Energy Policy, that includes "smart" meter technology. So why are we going through this charade—FOLLOW THE MONEY—topic for another day.

ALJ Johnson, or better yet (his First Year Law Student Ghost Writer) was unaware of DC ALJ Cheskis' email of October 04, 2019:

I am trying to be sensitive to your health issues and I appreciate your patience (and the company's patience) as I figure out the right thing to do here to ensure everyone's due process rights. I am headed out the door now for the weekend but as a preliminary matter I would suggest that the reassignment of this case from Judge Watson to me means that, at this time, you don't have to worry about Judge Watson's prior orders. I will respond more specifically to your other concerns on Monday.

Because Secretary Chiavetta would not provide the necessary time to research whether this email or others were ever recorded I have to presume that was not. There is a whole cadre of exchanges between the Complainant and DC ALJ Cheskis that would explain his granting of an ADA Accommodation that was lost in this complicated administrated judicial process, that even PA PUC doesn't understand. Time to throw the baby out with the water.

Unless your half-brain dead it means any reference to Watson and documentation is MUTE and does not mean it needed to regurgitation in ALJ Johnson's Initial Order which requires a Motion to Strike in its Entirety. SO MOVED. As a consequence any reference to that past history only provides the basis for Cheskis' decision to allow the Complainant, as he explained in his email of October 08, 2019:

To begin, after further consideration, I do not believe it is necessary for Mr. Chenosky to file an amended complaint. While he has every right to do that, and I cannot give him legal advice, I think it will unnecessarily complicate and delay this proceeding. Furthermore, I believe that under the procedure I propose below, Mr. Chenosky can raise the issues he would like to raise without having to amend his complaint and still provide due process to all parties.

Troubling that the Amended Complaint was unavailable in the subject docket except the HEAVILY REDACTED response by the Defendant. I'm reminded of the salutation of SNL Church Lady "*well isn't that special*".

Complainant has receipts/documentation on all First Class Mailings of these submissions but is providing as a courtesy hard copies of the following:

- 1 - June 1, 2020 Complainant's Direct Testimony ordered by DC ALJ Joel H. Cheskis un-redacted
- 2 - January 12, 2024 Justification for Indeterminate Stay as The PA PUC and All Utilities Conduct a Weaponization of the Pennsylvania Justice System Against ADA Compliance
- 3 - January 28, 2024 Weaponization of the Pennsylvania Justice System Against ADA Compliance EMF and Dirty Electricity Disabled
- 4- February 18, 2024 Removal of Tori Geisler as Counsel of record.

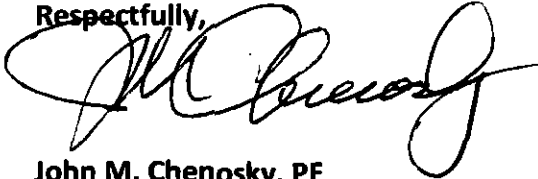
The last time Complainant looked we still have a First Amendment and like it or not as a Professional Engineer I am by law dedicated the TRUTH were ever it takes me.

**END OF COMPLAINANT'S
EXCEPTION III TOTAL INITIAL DECISION**

V. CONCLUSION

For the reasons set forth above, the Complainants respectfully request that the Commission grant these Exceptions and issue a Final Order that rejects the ALJ's Initial Decision of March 19, 2024 and orders Met-Ed Electric Utilities to grant Complainants an accommodation that is in accordance with Section 1501 and which is reasonable and consistent with not only the guidance set forth by the Pennsylvania Commonwealth Court in Povacz, but also the actual and true legislative intent of the Pennsylvania General Assembly as set forth in Act 129, such that the Complainants are permitted to simply retain the wired electric meters that are presently installed on their homes.

Respectfully,



John M. Chenosky, PE



Susan L. Lane

Dated: April 8, 2024

DATE OF DEPOSIT

APR 8 2024

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

DATE OF DEPOSIT

BEFORE THE

APR 8 2024

PENNSYLVANIA PUBLIC UTILITY COMMISSION

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

John M. Chenosky

v.

Docket No. C-2019-3007622

Metropolitan Edison Company

CERTIFICATE OF SERVICE

I hereby certify that I have served a true copy of Defendant Metropolitan Edison in answer to Defendant's TESTIMONY ORDERED BY DC ALJ CHESKIS ON 26DEC19 WHICH WAS STAYED BY THE PA PUC AND ORDERED A PREHEARING CONFERENCE (AFTER 3 YEARS STAY), WITHOUT SUFFICIENT TIME FOR AN APPROPRIATE RESPONSE BY COMPLAINANT.

I also certify that I served a true copy of a New Matter:

COMPLAINANT CHENOSKY SURREBUTTAL TESTIMONY ORDERED BY DC ALJ CHESKIS ON 26DEC19 WHICH WAS STAYED BY THE PA PUC AND ORDERED A PREHEARING CONFERENCE (AFTER 3 YEARS STAY), WITHOUT SUFFICIENT TIME FOR AN APPROPRIATE RESPONSE BY COMPLAINANT.

WHILE THE PA PUC AND ALL UTILITIES CONDUCT A WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE EMF AND DIRTY ELECTRICITY DISABLED, AND NOT PROVIDE AMPLE TIME FOR RESPONSE AS OTHER COMPLAINANTS RECEIVED IS UNJUSTIFIED. PUC ALJS HAVE CONDUCTED AN ASSAULT ON ETHICAL PENNSYLVANIA PROFESSIONAL ENGINEERS AND AUTHORS OF TENS OF THOUSANDS OF STEM PEER-VIEWED SCIENTIFIC METHOD DERIVED AUTHORITATIVE PAPERS. COUNTERING PUC'S INDUSTRY PROPAGANDA, INDICATING AS LEAST COGNITIVE DISSONANCE, IGNORING ESTABLISHED LAW, OR RAISE SUSPICION OF CRIMINAL BIAS.

Service by First Class Mail, postage prepaid, as follows:

Lauren M. Lepkoski
Tori L. Giesler
FirstEnergy Service Company
2800 Pottsville Pike
P.O. Box 16001
Reading, Pennsylvania 19612-6001

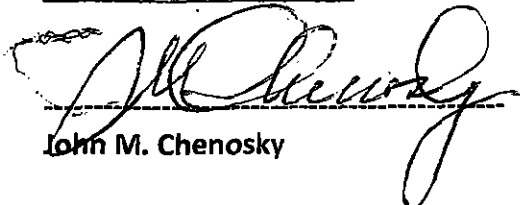
Conrad A Johnson, Adm. Law Judge
Pennsylvania Public Utility Commission
Piatt Place, Suite220
301 First Avenue
Pittsburg, PA 15222

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 172105-3265

John M. Chenosky
P.O.B. 423
Alburtis, PA 18011, 610-845-0279
johnsuzy@dejazzd.com

Date: January 28, 2024

John M. Chenosky



INTRODUCTION

This is an incomplete attempt to file the SURREBUTTAL TESTIMONY ORDERED BY DC ALJ CHESKIS ON 26DEC19 WHICH WAS STAYED BY THE PA PUC AND ORDERED AN UNREALISTIC TIMELINE PREHEARING CONFERENCE (AFTER 3 YEARS STAY), BY A NEW ALJ WITHOUT SUFFICIENT TIME FOR AN APPROPRIATE RESPONSE BY COMPLAINANT.

IN ADDITION THE DEFENDANT MET-ED UTILITY NEVER PROVIDED A COMPLETE TESTIMONY WITH ALL EXHIBITS AS ORDERED BY DC ALJ CHESKIS ON 26DEC19, WITHOUT WHICH COMPLAINANT CANNOT COMPLETE THE SURREBUTTAL.

IT IS APPARENT THAT ALJ JOHNSON IS NOT INTERESTED IN PRECEDENTS SET BY DALJ CHESKIS AND NOT INTERESTED IN UNDERSTANDING THE HISTORY OF THIS DOCKET BUT RATHER TO SWEEP THIS COMPLAINT ASIDE.

EVIDENCE SUBMITTED WITH THIS SURREBUTTAL- January 28, 2024

- Amended Disciplinary Board Complaint against Lepkosi and Giesler Defendant's Attorneys of January 24, 2024 and the Statement of Complaint filed against Ronal C. Long, PE (Met-Ed's in house "expert" witness) with Exhibits.
- Cover letter 18JAN24 The Disciplinary Board—Supreme Court of Pennsylvania District II Trooper PA with Complaint forms dated January 18,2024.
Email 07DEC23 to MDADA Coordinator "GRIEVANCE FROM DENIAL OF ACCOMODATION"
- Formal "Grievance from Denial of Accommodation" PUC Administrative Law Court "THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED " 06DEC23.
- Motion for Indeterminate Stay 12JAN24 " THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM BY THE PUC & UTILITIES AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED.
- Response to PA SILC request for Life Experiences of Pennsylvanians With Disabilities
Email 29DEC23 Outlining the Criminal Assault by the PA PUC & Utilities Weaponizing the Pennsylvania Justice System Against ADA Complianance of EMF/Dirty Electricity Disabled.

OLDER TESTIMONY EXHIBIT #1 (partial) the balance to be retrieved form PA PUC files:

ACCOMODATION OF OPT-OUT OF DIGITAL METERS EMF-EMITTING INVOICING TOOLS FOR PHYSICAL DISABILITY/MEDICAL CONDITION DUE TO PROLONGED EXPOSURE TO EMF MIROWAVE RADIATION AND TRANSIENT FREQUENCY AND STRAY CURRENT OF HAZARDOUS MUTIGROUNDED NEUTRAL OF WYE ELECTRICAL DISTRIBUTION SYTEMS DATED JUNE1, 2020 INCLUDING:

Significant evidence that was previously submitted needs to be included under this portion of the Complaint since the Defendant never answered any allegation.

IN ORDER OF SUBMISSION THESE DOCUMENTS INCLUDE:

Formal Complaint completed on PA PUC Standard Complaint Form, 29JAN19 including the following Exhibits:

A-1 & 2 Reasons for Complaint & Requested Relief
B-1, 2 & 3 PA PUC Informal Complaint Form Sent 27/DEC18
C-1 & 2 PA PUC "Smart Meter Q&A" Propaganda
D-1 Email to Complainant's PA Rep. David A. Maloney Sent 04JAN19
E-1 Respondent Unspecified Notification Letter
F-1 Complainant's NO TRESPASS/NO INSTALL SMART METER email/letter

Answer and Objection to New Matter & Preliminary Objection of Metropolitan Edison to the Complainant John M. Chenosky to the PA Public Utility Commission
Answer to New Matter—Legal Insufficiency, 29MAR19.

Objections to Interrogatories and Objections to Requests for Production of Documents of Metropolitan Edison Company to John M. Chenosky, Set 1, 18JUL19.

Answer to Set 1 Interrogatories and Production of Documents to Metropolitan Edison Company from John M. Chenosky, 18JUL19.
Including the following Exhibits:

ATI- 1a-g Petition: 26,000 Scientists Oppose 5G Roll Out, Principia Scientific International, 03JUN19. Note now approaching 250,000 signatures.
ATI- 2a-h Reported Biological Effects from Radiofrequency Radiation at Low Intensity Exposure (Cell Tower, WiFi, Wireless Laptop and "Smart" Meter RF Intensities)
ATI- 3a-b 11APR19 Email to PA Legislators, "Pollution Collusion-Biological Effects EMF from Smart Meters."

Objections to Metropolitan Edison Company Motion to Compel of July 29, 2019 and Motion to Dismiss Motion to Compel of July 29, 2019 as Submitted by Defendant Metropolitan Edison, 16AUG19.

Answers t Interrogatories Posed (ATI) by Defendant Metropolitan Edison to Complainant John M. Chenosky, Set 1 Amended
Including the following Exhibits:
Exhibit "X" Petition International Appeal Stop 5G on Earth and in Space
Exhibit "Z" Eight Repeatedly Documented Findings Each Show that EMF Safety Guidelines Do Not Predict Biological Effects and Are, Therefore Fraudulent: Martin Pall.

Motion of the Complainant to Compel Responses from Metropolitan Edison Company to Answer All Scientific Information Provided by the Complainant that Smart Meter Technology is flawed. And provide Evidence that the PA PUC and Defendant Metropolitan Edison used to Insure the Safety of the Children and Citizens of the Commonwealth, 21SEP19. Certificate of Service was never dated due to inadequate time established by the then ALJ and the Aphasia Limitations of the Complainant. This Testimony is on file with PUC as well as other Testimony.

All of these complaints are important elements of this Docket moving forward, over which I have no control over the timing. ALL of the Documents you already have in your possession are hard copied and as I understand it, are posted to the PUC's e-service according to the PUC's Secretary, thus satisfying that requirement.

In my opinion Judge Cheskis already established the precedent under his ADA ACCOMODATION, i.e., written testimony as dictated in the above procedure and was the result of his letter (your Item #8, Attachment "A"). Is there anybody in your Administrated Law Court that can read English and that can follow the dots??? SCHEDULING ORDER December 26, 2019. Cheskis took the time to understand the Disability of Anomic & Expressive Aphasia, one of many co-commodities that will not permit Complainant's active participation and ONLY WRITTEN TESTIMONY.

In Docket C-2019-30104437 there is yet another ruling, by Deputy Chief ALJ Cheskis that sets precedents, and again, sets an example that all the ALJs should follow as well. Answers that Complainant did provide in Discovery were sufficient for a Pro Se.

This last ruling incorporates the spirit of the first ruling and so much more. In this ruling, Cheskis allows all 13 of Complainants exhibits over the objections of PPL for all the possible reasons PPL could make regarding the rules of evidence/admissibility. Complainant did not have any witnesses. Also Cheskis mentions that it is not uncommon in an administrative law setting for hearsay rules to be relaxed (see pg. 6,); Commission regulations are to be liberally construed ...especially with regard to Pro Se litigants (pg.3); and hearsay, authenticity and reliability would not be used to preclude the admission of the exhibits into the record of this proceeding.

In this Docket, Complainant is his own "Expert Witness" with 21 years of formal education, .i.e. twelve years of 1-12 (50s & 60s) and earned Academic Diploma when we actually learned the STEM prerequisites for College entrance, not the education you youngsters apparently missed out on. Nine (9) years of STEM University education with a BS ChE (Chemical Engineering) Degree (1st in my major) with over 50 years of continuing education in all fields, being a scientist first and a Professional Engineer in four States (2-retired), most importantly in Pennsylvania (1975). Successfully ran a design-build Engineering business with numerous Fortune 500 companies and Government Agencies as clients. Over that time my firm specialized in Air & Water Pollution Control and Pharmaceutical Design even completed the design of a Tertiary Ash Collection System for the U.S. Coal Power Plant working with the Architect of the Capitol in the 80s. Over the last five years acquired extensive experience on the negative effects of Smart Meter Technology, i.e., fire safety, EMF/RF effects on DNA and the accelerated diseases of the Digital Age. Most importantly the ALJs continued assault on the credentials of Ethical Pennsylvania Professional Engineers needs to be remedied.

Defendant's Attorneys and "expert witness," by ignoring the science of bioengineering are complicit /guilty of crimes against humanity as defined by the Nuremberg Code, the Helsinki Accord and the Federal Policy for the Protection of Human Subjects ('Common Rule') by subjecting their customers to the experiment of Smart Meter Technology. HHS Regulations 45 CFR part 46, and four subparts.

Based upon the position of the Pennsylvania Public Utility Commission and the actions of its agents, it would appear they are equally complicit/guilty of these crimes.

It would appear to the Complainant as a Pennsylvania Professional Engineer, that the PUC, Utilities and the PA Court System are living in an alternative reality, as they refuse to honor INDEPENDENT studies about the mechanical deficiencies; fire safety and Biological Impacts of Smart Meters. The rest of the world operates on the Scientific Method of STEM peer-reviewed scientific studies. Yet this crowd who are STEM-deficient is leaving themselves liable, knowing that over 20,000 studies (many Federal Government-generated) are making them look agenzized and not operating in the best interest of the Citizens of this Commonwealth, especially the disabled Dirty Electricity and EMF/RF sensitive victims and more importantly, the children who don't have a voice.

Noting the appearance of the PA PUC's ALJs changing the rules in the middle of the game, Complainant insists that the current prevailing ALJ Johnson follow the precedent of the SCHEDULING ORDER OF DECEMBER 26, 2019 , issued by Deputy Chief Administrative Law Judge Joel H. Cheskis, requiring written testimony-- not requiring in-person or phone communication of any kind. DC ALJ Cheskis also advise that the parties are encouraged to engage in settlement discussions as early as possible. There was no movement from the Defendant in over three (3) years. Possibly the Defendant Utility must have had some inside information?

Respectfully,



John M. Chenosky, PE
Complainant

PS: My apologies for any grammatical or spelling errors (Aphasia) due to the unrealistic Surrebuttal submission time demanded by the PA PUC's Pittsburg Office of the ALJ. No apologies for the free acerbic wit.

EXHIBIT #ST-2

EVIDENCE SUBMITTED WITH THIS SURREBUTTAL- January 28, 2024

Amended Disciplinary Board Complaint against Lepkosi and Giesler Defendant's Attorneys of January 24, 2024 and the Statement of Complaint filed against Ronal C. Long, PE (Met-Ed's in house "expert" witness) with Exhibits.

John M. Chenosky, PE
P.O. Box 423, Alburtis, PA 18011
610-845-0279; email Johnsuzy@dejazzd.com

The Disciplinary Board --Supreme Court of Pennsylvania
District II
820 Adams Ave. Suite 170
Trooper, PA 19403

Docket C-2019-3007622 - John M. Chenosky v. Metropolitan Edison Company
Opposing Counsels
Lauren M. Lepkoski Attorney No. 94800
Tori L. Giesler Attorney No. 207742

AMENDED COMPLAINT ORIGINAL DATED JANUARY 18, 2024

TWIMC:

After reviewing the subject Complaint it became obvious that the allegations of perjury were not sufficiently explained in the original submission.

Enclosed is a copy of a Statement of Complaint filed against Ronald C Long, PE with self-explanatory letter and Exhibit "A", "B" & "C" including a RESOLUTION EXPLANATION.

The evidence submitted clearly explains the Defendant's testimony as an "expert" witness in the above captioned Docket C-2019-3007622. It also clearly outlines the fabricated story by Opposing Counsels which they used to denigrate my Testimony. Their own in-house Manager Operations Services put in evidence their perjury by his email to me of September 28, 2020, Exhibit "C".

As this Complaint against Ronald C. Long, PE is being handled by a different Agency, copies of relevant correspondence is enclosed with this Amendment. They include:

- **Acknowledgement letter, Office of General Counsel Dated 12/20/2023.**
- **Email of 01/16/2024 from Investigator Hernandez.**
- **My email response to Hernandez of 01/17/2024, Complaint Case No. 23-47-018463**

Please forgive my error, as it quite clearly demonstrates the difficulty we Aphasia Disabled face on a daily basis and why an accommodation of written testimony is the only option.

Respectfully,

John M. Chenosky, PE

January 24, 2024

STATEMENT OF COMPLAINT



(FOR OFFICIAL USE ONLY)

--

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF STATE
Harrisburg

In order for the Department of State to initiate an investigation of possible violations of the licensing, registration, certification or notary commission laws and regulations of the Commonwealth by a licensee, registrant, certificate holder or notary commission holder of the Department, the complainant must complete both sides of this form. Complaints should be typewritten or clearly printed in black or blue ink. Please state the facts briefly and clearly, and be sure to submit any documents you have to support your complaint. Sign this form and return it to the DEPARTMENT OF STATE, COMPLAINTS OFFICE, 2601 NORTH THIRD STREET, P.O. BOX 2649, HARRISBURG, PA 17105-2649.

THIS FORM MUST BE SIGNED AND FILLED OUT COMPLETELY IN ORDER TO BE PROCESSED.

TYPE OF COMPLAINT (PLEASE CHECK ONE): NOTARY ATHLETIC COMMISSION CHARITY

PROFESSIONAL/OCCUPATIONAL LICENSE/CERTIFICATE/REGISTRATION OTHER

A. COMPLAINANT INFORMATION

LAST NAME Chenosky	FIRST John	MIDDLE INITIAL M
STREET ADDRESS (Number and Name) 1000 Huffs Church Rd., POB 423		
CITY Alburtis	COUNTY Berks	STATE ZIP CODE PA 18011
TEL. (Include Area Code) (HOME)		(WORK)
610-845-0279		Reference Only

B. COMPLAINANT'S ATTORNEY, IF ANY.

LAST NAME	FIRST	MIDDLE INITIAL
STREET ADDRESS (Number and Name)		
CITY	COUNTY	STATE ZIP CODE
TEL. (Include Area Code)	FIRM NAME	

C. NAME AND ADDRESS OF WITNESS, IF ANY.

LAST NAME	FIRST	MIDDLE INITIAL
STREET ADDRESS (Number and Name)		
CITY	COUNTY	STATE ZIP CODE
TEL. (Include Area Code)	If needed, is this witness willing to support your complaint by appearing at a hearing? <input type="checkbox"/> YES <input type="checkbox"/> NO	

D. NAME AND ADDRESS OF SECOND WITNESS, IF ANY.

LAST NAME	FIRST	MIDDLE INITIAL
STREET ADDRESS (Number and Name)		
CITY	COUNTY	STATE ZIP CODE
TEL. (Include Area Code)	If needed, is this witness willing to support your complaint by appearing at a hearing? <input type="checkbox"/> YES <input type="checkbox"/> NO	

NOTE: If additional witnesses are available, list names, addresses, and other pertinent data in a manner similar to above on 8 1/2 x 11" paper.

E. ARE YOU WILLING TO APPEAR AT A HEARING IN HARRISBURG IF NECESSARY? YES NO

DEFENDANT INFORMATION

F. BUSINESS ESTABLISHMENT INVOLVED, IF ANY.

LAST NAME	FIRST	MIDDLE INITIAL
STREET ADDRESS (Number and Name)		
CITY	COUNTY	STATE ZIP CODE
TEL. (Include Area Code)	PROPRIETOR	

G. INDIVIDUAL INVOLVED, IF ANY.

LAST NAME Long, Jr.	FIRST Ronald	MIDDLE INITIAL C
STREET ADDRESS (Number and Name) business address is 2800 Pottsville Pike Reading		
CITY Berks	STATE ZIP CODE PA 19612	
TEL. (Include Area Code)	LICENSE/REGISTRATION/CERTIFICATE/COMMISSION TYPE AND NUMBER IF KNOWN PE045751E	

H. FOR NOTARY COMPLAINTS ONLY:

Expiration date of notary's commission if known (*this date should appear on the notary's stamp, printed beneath the notary seal*):

Date of transaction for which this complaint is being filed:

I. DESCRIPTION OF COMPLAINT.

Please describe your complaint in detail below. List services provided by the licensee, registrant, certificate holder or commission holder. Provide dates. List fees paid for notary services, if applicable. Attach copies of related documents and receipts obtained during the course of the matter if possible. If you need more space, please continue on page 4 of this form and/or use additional 8 1/2 x 11" sheets of paper if necessary.

SEE ATTACHMENTS

John Chenosky

Subject: Ronald J. Long, Jr. PE045751E

The Statement of Complaint against Ronald J. Long, PE, PA License No. PE045751-E stems from his testimony as an "Expert Witness" in the following:

**BEFORE THE PENNSYLVANIA PUBLIC COMMISSION
John M. Chenosky v. Metropolitan Edison Company
Docket No. C-2019-3007622**

This charade, I and 108 Complainants, (thousands were intimidated by the PUC & Utilities and declined Formal Complaints), that have been participating over the last half-decade involves microwave radiation produced by "Smart" Meters which produce high-frequency voltage transients of conducted emissions and/or which introduce, add to, or propagate such emissions through the electrical wiring of home and buildings.

It is suggested that State Action Doctrine was never considered, i.e., in *Jackson v. Metropolitan Edison Co.*, 419 U.S. (1974) and in *Lugar v. Edmondson Oil*, 457 U.S. 922, 942 (1982), the Court stated:

"[W]e have consistently held that a private party's joint participation with state officials in the seizure of disputed property is sufficient to characterize that party as a 'state actor' for purposes of the Fourteenth Amendment. The rule in these cases is the same as that articulated in *Adickes v. S.H. Kress & Co.*, supra, at 152, in the context of an equal protection deprivation:

"Private persons, jointly engaged with state officials in the prohibited action, are acting "under color" of law for purposes of the statute. To act "under color" of law does not require that the accused be an officer of the State. It is enough that he is a willful participant in joint activity with the State or its agents," quoting *United States v. Price*, 383 U.S., at 794."
Defendant Long, as an Agent for Met-Ed Utility, is participating in the prohibited action, acting under color of law.

Complainant has brought forth a voluminous amount of highly relevant, highly credible and reliable evidence of definite probative value that certainly meets the above criteria and which would constitute a preponderance of evidence, acceptable to any reasonable mind, that forced, chronic, long-term exposure, even at very low levels, to the radiofrequency radiation and RF fields produced by Met-Ed Electric's AMI wireless smart meters poses a substantive risk to health and safety.

Defendant Long apparently made no deep dive to properly research the science, as his responses reflect those of his employer Met-Ed and Industry Propaganda, and are meant to obfuscate, deny, cloud and baffle you with their propaganda and lies. He also suggested my copious filings did not raise any safety or operational concerns that have any validity. How one can ascertain that conclusion when the Defendant has no demonstrated experience in the Science of Biology. He has

not produce any evidence that he had any health or safety education on Smart Meters, authoring scientific papers, attending seminars, interpreting legal opinions and would be in violation of engineering ethics such as testimony in a field(s) in which the Defendant is not proficient. I would also suggest that Met-Ed's lawyers never provided ALL documents to Long and he did the corporate two-step.

Defendant Long was questioned by their Corporate Attorney about Outages (their p.5 of Long's rebuttal testimony Exhibit "A") and the Met-Ed lawyer's question is a fabrication. On page 6a (Exhibit "B") of my testimony the lawyer suggested that my property (my pole barn) had a sustained outage. Copies of both pages are enclosed. The last two paragraphs did not suggest any such thing.

Defendant Long stated he personally reviewed Met-Ed's outage system and stated no interruption occurred to try discredit my testimony.

In September 2020 a visit to Met-Ed's Boyertown Service Center when I met with Richard W. Monk III, Mgr. Operations Svcs., who confirmed a transformer servicing by pole barn was stuck by lightning and was replaced on 07JUL19 late in the evening. At least someone in Met-Ed's employ knows what's going on. A copy of the email (Exhibit "C") sent by Mr. Monk to me is provided as verification.

Defendant Long has officially perjured himself. So did the Lawyer(s).

Without the Complainants' consent, Met-Ed Electric Utilities does *not* have the statutory authority or right, pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), to use Complainants' homes in such a way as to irradiate them in perpetuity *from their own premises* with what has been found by IARC, on the basis of sufficient scientific evidence, to be *a Group 2B possible human carcinogen*. Nor does Met-Ed have the right under 50 U.S.C. 36, Subchapter I, §§ 1801(f), 1809(a), 1810, and 1812 to:

(3) the intentional acquisition by an electronic, mechanical, or other surveillance device of the contents of any radio communication, under circumstances in which a person has a reasonable expectation of privacy and a warrant would be required for law enforcement purposes, and if both the sender and all intended recipients are located within the United States;

(4) the installation or use of an electronic, mechanical, or other surveillance device in the United States for monitoring to acquire information, other than from a wire or radio communication, under circumstances in which a person has a reasonable expectation of privacy and a warrant would be required for law enforcement purposes. Long is participating by implementing the Smart Meter Program.

6710.1 Legislative intent – protection of the public

Protection of the public shall be the highest priority for the Board for Professional Engineers, Land Surveyors, and Geologists in exercising its licensing, regulatory, and disciplinary functions. Whenever protection of the public is inconsistent with other interests sought to be promoted, the protection of the public shall be paramount.

Thousands of papers of scientific, biological-based peer-reviewed were ignored by this individual as an Agent of Met-Ed Company and acting as a willful participant in joint activity with the State of Pennsylvania and its Agents.

My utility Met-Ed, Reading PA, has submitted testimony from two witnesses that have perjured themselves, have provided no significant background in either the implementation, biological impacts of Smart Meters, are both guilty of conflict of interest and PA Engineering Law Ethics.

In reviewing the PA Board of Engineers file on Defendant Long I pose the following observations:

Long's degree is a Bachelor of Science degree in Electrical Engineering Technology from Penn State University. Interesting that ABET Crediting Agency does not have a historically accredited program in Electrical Engineering Technology.

License Issue Date: 08-01-1994

License Status Effective Date: 05-14-2001

Not sure what this means, please clarify.

CONCLUSIONS:

1 – Defendant Long was testifying for his employer Met-Ed. This constitutes a Conflict-of-Interest ethics violation.

2 – Defendant Long perjured himself (as well as his attorney) by inventing a fabricated story, or, "rubber stamped" a corporate fairy tale.

3 – Defendant Long has attempted "...To practice in in the field of Biomedical Engineering in which the Registrant is not proficient."

4 – Defendant Long as a private person , jointly engaged with state officials in the prohibited action, are acting "under color" of law for purposes of the statute. To act "under color" of law does not require that the accused be an officer of the State. It is enough that he is a willful participant in joint activity with the State or its agents," quoting United States v. Price, 383 U.S., at 794." Violating my Civil Liberties under the Fourteenth Amendment of US Constitution.

5 – Section 3.6 Interruption & Liability of the First Energy Manual "..... any fault or failure of the Company or otherwise except such damages that are caused by or due to the willful and wanton misconduct of the Company." Defendant is participating in exactly that misconduct that is injurious to potentially thousands of Ratepayers.

This Health issue may come as a surprise to many including Professional Engineers. One of the reasons in fact, is due to the NSPE/PSPE is engaging in censorship, starting with NSPE's website where non-engineers would not allow articles or opinions that did not fit the Narrative to be posted. At the Annual Meeting in Bethlehem I confronted then NSPE President (2021-2022) Rick Guerra, PE, about the issue and suggested that NSPE's David Siegel was behind the problem—he sits on the Ethics Review Board (sic). More on this next year.

In an effort to give reviewers a video by another PE, is only 30 minutes long and consolidates many of the issues I confronted the PAPUC/Met-Ed in my many Formal Complaints. Enjoy.

https://www.youtube.com/watch?v=xAZ_KGN2vAc.

The reason besides age and copious comorbidities is that I have to deal with Anomic & Expressive Aphasia due to numerous strokes. My Testimony in this Docket is all written and any future testimony or correspondence with the Board needs to be in email or snail mail.

Many of you never understand what millions in the USA deal with. This link should help you in that regard:

<https://aphasia.org/stories/different-types-aphasia/>.

As an affliction of Aphasia I apologize for any spelling or grammatical errors as a result of four strokes over 31 years.

As always I reserve the right to extent and modify my remarks and add additional information as new evidence and data become available.

John M. Chenosky, PE

PE0022911-E

Environmental & Energy Specialist for 55 years

EXHIBIT "A"

1 to the NEC for proper grounding and bonding of their customer-owned service equipment.
2 For this reason, the Company specifically requires an electrical inspection for new or
3 modified service equipment from all customers as proof of adherence to the NEC.

4 **IV. OUTAGES**

5 **Q. On page 6a of his Direct Testimony, Mr. Chenosky alleges that he experienced a**
6 **sustained outage in the late summer of 2019. Does the Company have any business**
7 **records that indicate Mr. Chenosky did in fact experience a sustained outage in the**
8 **late summer of 2019?**

9 A. No. As Exhibit JCA-2 provided in Company Witness Mr. Ahr's testimony indicates, Mr.
10 Chenosky did not contact Met-Ed reporting any outage at the Service Location in the
11 summer of 2019, or at any time in 2019, for that matter. I have also personally reviewed
12 Met-Ed's outage management system for any interruptions that would have impacted Mr.
13 Chenosky's service location during that time. No such interruptions occurred on the
14 Company's system as alleged by Mr. Chenosky.

15 **Q. After a complete review of Mr. Chenosky's Direct Testimony and all Met-Ed**
16 **business records related to the provision of service to his service location, do you**
17 **believe that Mr. Chenosky has raised any safety or operational concerns that have**
18 **validity in this matter?**

19 A. No, I do not.

20 **Q. At all times has Met-Ed provided reasonable and adequate service to Mr. Chenosky**
21 **in accordance with all applicable tariffs and regulations?**

22 A. Yes.

EXHIBIT "B"

RE-VISIT DOCKET C-2017-2638380:

The above docket outlined the multiple grievances the Complainant has experienced since he constructed his residence and accessory use building starting in 1998 and is incorporated here as summited in total. The response from the Defendant was nothing more than denial of the facts and replete with errors. Because of numerous issues including chronic health conditions and insufficient time to research the numerous legal and technical issues, the Complainant was forced to suspend this action. It is still under the three year window for resubmission and is a perfect segue into "Dirty Electricity" and the Wye Electrical Distribution Network in this State.

In December 2019 the Defendant did me a favor by threatening cancellation of my electric service if I didn't install a Smart Meter, embarking on a "Mission from God" (Blues Brothers Film-Akroyd) and a 2 yearlong scientific/engineering study of biologically effects of microwave radiation and dirty electricity, fulfilling my CPC requirements for my Professional Engineering License in the process. I've read and absorbed at least several hundred Scientific Papers and 10 or more books, which in my view, uniquely qualifies me as an Expert Witness. How does that fit the Judicial Process in this matter?

How do experts qualify to testify? According to FRE 702?--, "Knowledge, skill, experience, training, or education"; note the conjunction "or." This means that you only need to have one of the above characteristics to testify, not all five, albeit a case can be made that I qualify in all. Apparently this flies in the face of the majority of ALJ's rulings of the PA PUC in EMF-EIT complaints and appeals.

In the continuing Saga of this Defendant's incompetence, the power went out in my accessory use building late summer of 2019. I met with the responding lineman late one summer's evening as he descended from his hydraulic bucket, after he examined Transformer (#25) (the transformer I was forced to purchase according to Defendant's interpretation of its Tariff). This is the same Transformer engineering personnel in Reading accused me of lying about-- a contract I was forced to sign and then admitted they could not locate---subject Docket Exhibits show its existence.

Interestingly the lineman left me with the impression that the relatively new transformer that I purchased needed to be replaced. Next morning power was restored. There was no courtesy call or explanation ever offered to date regarding the condition of the Transformer, or, whether it was replaced---typical of Met-Ed.

EXHIBIT "C"

John Chenosky

From: Monk III, Richard W <rmonk@firstenergycorp.com>
Sent: Monday, September 28, 2020 2:17 PM
To: johnsuzy@windstream.net
Subject: Outage on 7/25/19

John,

I found your outage order. We replaced a failed 25kva transformer. I will also pass on your information to our designers about your service needs. Remember to call customer service to set up the work request. This work request is what starts the process.

FirstEnergy

Richard Monk III
Mgr, Operations Svcs
office: 610-473-1107 (501-1107)
rmonk@firstenergycorp.com
900 Montgomery Ave, Boyertown, PA 19512 | mailstop: R-BOYE / Boyertown

The information contained in this message is intended only for the personal and confidential use of the recipient(s) named above. If the reader of this message is not the intended recipient or an agent responsible for delivering it to the intended recipient, you are hereby notified that you have received this document in error and that any review, dissemination, distribution, or copying of this message is strictly prohibited. If you have received this communication in error, please notify us immediately, and delete the original message.

J. RESOLUTION.

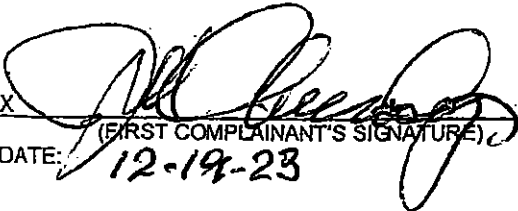
How would you like this complaint to be resolved?

SEE ATTACHMENT

If additional space is needed, please attach 8 1/2x 11" sheets.

K. COMPLAINANT'S VERIFICATION.

I verify that the facts and statements set forth in this complaint are true and correct to the best of my knowledge, information and belief. I understand that statements in this complaint are made subject to the criminal penalties of 18 Pa.C.S. §4904 relating to unsworn falsification to authorities.

X  (FIRST COMPLAINANT'S SIGNATURE)
DATE: 12-19-23

X _____ (SECOND COMPLAINANT'S SIGNATURE, IF ANY)
DATE:

X _____ (SIGNATURE OF PERSON COMPLETING THIS FORM, IF OTHER THAN COMPLAINANT)
DATE:

RETURN COMPLETED FORM TO:

Complaints Office
Department of State
2601 North Third Street, P.O. Box 2649
Harrisburg, PA 17105-2649
Fax 717 705-2882

L. RECORDS RELEASE (PLEASE COMPLETE IF IT APPLIES TO YOUR COMPLAINT).

TO WHOM IT MAY CONCERN:

THIS WILL AUTHORIZE _____ (name of physician, practitioner, hospital or clinic)
to release to the Department of State and its authorized representatives any pertinent medical records and copies of x-rays relating to

_____ (patient's name)
for the purpose of investigating a complaint.

Signature _____
Date: _____

Witness _____
Date: _____

J. RESOLUTION

It is apparent that the Defendant never verified statements in his testimony before he perjured himself. Whether he did that deliberately, or assumed that his corporate colleague confirmed the accuracy of his statement (in Exhibits that I never received from Met-Ed's latest brief) and "rubber stamped" his testimony, has yet to be determined. As of this date December 19, 2023 I have not received the Exhibit JCA-2 that Defendant refers to. As a matter of fact the same goes for Exhibit JCA-1 & JCA-3. I attributed this to corporate incompetency.

A requirement of the ALJ in my Formal Complaint Docket C-2019-3007622 required the Utility provide Snail Mail copies of COMPLETE filings, an accommodation for my Aphasia Disability, which they did not do. I attribute that to carelessness and no transmittal letter to verify the sending of completed documents. The PUC's Email service that may/or may not have received the Exhibits in question, I can't verify as my Computer Software/ Security Protocol won't allow it.

As a Pro Se Plaintiff, I do not profess to provide legal opinions, just my understanding of what I believe is unacceptable when it comes to the Practice of Professional Engineering in Pennsylvania as I have experienced it since 1975. And I am wary of the actions of ALJs in the apparent assault on Professional Engineering Testimony in Pennsylvania Courts.

At this juncture I have concluded that elements of the downside of the Industrial Exemption is in play, and when I file the Formal Complaint against the Defendant's colleague (completed when I receive the deleted Exhibits) will I have a better understanding of how I would like to see this matter resolved.

The Pennsylvania Commonwealth Court has concluded in Act 129 does not preclude accommodation of customers' health concerns (Provacz et al. v. PUC , No.492, C.D. 2019) and erroneously predicated on requiring the Complainants to produce their medical records in order to pursue their due process. Consequently I decline same because it spans 31 years, three separate medical groups and would fill two Banker's Boxes, or equivalent electronic data.

John Chenosky

From: John Chenosky <johnsuzy@windstream.net>
Sent: Wednesday, January 17, 2024 11:04 AM
To: 'Hernandez, Santiago'
Cc: dmaloney@pahousegop.com; tpennycuick@pasen.gov; pstefano@pasen.gov; lboscola@pasenate.com; Jennifer Summers
Subject: RE: Investigation

Complaint Case Number 23-47-018463
RONALD LONG, JR.

TWIMC:

I received a correspondence Re: CP_23_020345, Professional Compliance Office, 12DEC23, which suggested that normal processing of a complaint that I filed may take 9-12 months to begin the process, so I was surprised to hear from the undersigned investigator. Generally one would expect that the Complaint was read before investigating. By virtue of his letter, which does not even refer to the Complaint Number, the agent did not read, or did not have all of the information provided, or ignored my testimony.

Since I am Permanently Anomic & Expressive Aphasia Disabled and have a hearing deficit, I turned the call over to my wife who tried to explain to the agent that an interview was out of the question. Apparently by virtue of this response, the agent did not understand a word she told him. All of this information was contained on p.4 of the Complaint.

As the Complaint implies I do not do verbal interviews/testimony because of my disability. As other PA State Agencies are ADA Accommodation ignorant it does not surprise me that this Investigator does not understand the requirements of ADA Compliance. There is a precedent set by Joel H. Cheskis, Deputy Chief Administrative Law Judge, on his Scheduling Order, December 26, 2019, for ADA written testimony Docket C-2019-3007622, John Chenosky v. Metropolitan Edison Company. There is absolutely no reason that this accommodation does not apply here.

There was a link provided on p.4 of the Complaint. Once the agent, or someone with a better CV, reads and understands the Complaint, I am happy to respond in written form. However accessing the PA PUC E-file documents under the above mentioned docket will provide all the supplemental details needed.

As noted on p.1 of the Complaint, I am unable to travel as I am 80 years old and suffer chronic ailments from significant health maladies, e.g. stroke(s) residuals and degenerative discs(4).

Respectfully,

John M. Chenosky, PE
License Number PE022911E

From: Hernandez, Santiago [<mailto:sanhernand@pa.gov>]
Sent: Tuesday, January 16, 2024 12:53 PM
To: johnsuzy@windstream.net
Subject: Investigation

January 16, 2024

Mr. John M. Chenosky:

My name is Santiago Hernandez. I am an Investigator with the PA Department of State, Bureau of Enforcement, and Investigations. Our office investigates complaints filed against an individual or business licensed by one of 29 different State Boards and Commissions, one of which is the State Board of Professional Engineers, Land Surveyors, and Geologists.

I have been assigned to investigate the complaint you filed. Per state policy, we must meet in person to discuss this complaint.

Please contact me so we can schedule an interview. My email is sanhernand@pa.gov, and my cell number is 717-903-5637.

Thank you for your anticipated cooperation in this matter.

Santiago Hernandez | Professional Conduct Investigator
PA Department of State | Bureau of Enforcement & Investigation
17 North 2nd Street, Suite 1100 | Harrisburg, PA 17101
Cell: 717.903.5637 | Fax: 717.772.2682
www.dos.pa.gov | sanhernand@pa.gov



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EXHIBIT #ST-3

EVIDENCE SUBMITTED WITH THIS SURREBUTTAL- January 28, 2024

**Cover letter 18JAN24 The Disciplinary Board---Supreme Court of Pennsylvania District II
Trooper PA with Complaint forms dated January 18,2024.
Email 07DEC23 to MDADA Coordinator "GRIEVANCE FROM DENIAL OF ACCOMODATION"**

John M. Chenosky, PE
P.O. Box 423, Alburtis, PA 18011
610-845-0279; email Johnsuzy@dejazzd.com

The Disciplinary Board —Supreme Court of Pennsylvania
District II
820 Adams Ave. Suite 170
Trooper, PA 19403

Docket C-2019-3007622 - John M. Chenosky v. Metropolitan Edison Company
Opposing Counsels
Lauren M. Lepkoski Attorney No. 94800
Tori L. Giesler Attorney No. 207742

TWIMC:

As one will clearly note this is not the normal disciplinary request, as it involves a two- attorney tag team (hereinafter called L&G) working for a corporate behemoth, ganging up on a Permanently Disabled Pro Se Octogenarian and his wife who are trying to prevent their early demise by decreasing the toxic load of Dirty Electricity generated by the Defendant, as well as, the EMF/RF exposure of the PA PUC sponsored Smart Meter Utility Program, meters that produce high-frequency microwave radiation and high-frequency voltage transients of conducted emissions and/or which introduce, add to, or propagate such emissions through the electrical wiring of homes and buildings. At this juncture we have pursued OP-OUT measures against these meters by providing Motions and Briefs for the last 5 years and presently we do not have Smart Meters.

Tens of thousands of peer reviewed studies have verified the biological harm and fire/explosion issues due to latent design and manufacturing defects of these devices. Mostly all have been denied by agenized PA ALJs in what borders on criminality.

Since the subject lawyers also act as a team they are equally guilty of violation of the Rules of Professional Conduct and/or the Rules of Disciplinary Enforcement. That would include violation of my ADA & HIPAA protective rights by their cause of rights deprivation.

What is particularly troubling is that L&G has fabricated a corporate fairy tale perjuring themselves and implicated the two employees in the perjury all as outlined in the following filings.

This letter is a record of Transmittal of the following documents:

- **Email 07DEC23 to MDADA Coordinator "GRIEVANCE FROM DENIAL OF ACCOMODATION"**
- **Formal "Grievance from Denial of Accommodation" PUC Administrative Law Court "THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED " 06DEC23**
- **Motion for Indeterminate Stay 12JAN24 " THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM BY THE PUC & UTILITIES AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED**

Additional Briefs, Motions, emails, etc. available at PA PUC E-file Docket C-2019-3007622.

No Briefs or Motions of L&G are included because they constitute proselytizing and testimony by the unqualified in STEM education, never written a Science White Paper L&G attorneys masquerading as Electrical Engineering experts, never answering a single question and redacting the reams of scientific information presented. Rebuttal filing of Met-Ed attorneys 01SEP20 was incomplete and is nothing more than redacted trash. The PA PUC ALJs have never called them out in this charade, making them appear to be complicit while denying all legal precedents.

It is suggested that State Action Doctrine was never considered, i.e., in *Jackson v. Metropolitan Edison Co.*, 419 U.S. (1974) and in *Lugar v. Edmondson Oil*, 457 U.S. 922, 942 (1982), the Court stated:

"[W]e have consistently held that a private party's joint participation with state officials in the seizure of disputed property is sufficient to characterize that party as a 'state actor' for purposes of the Fourteenth Amendment. The rule in these cases is the same as that articulated in *Adickes v. S.H. Kress & Co.*, supra, at 152, in the context of an equal protection deprivation:

"Private persons, jointly engaged with state officials in the prohibited action, are acting "under color" of law for purposes of the statute. To act "under color" of law does not require that the accused be an officer of the State. It is enough that he is a willful participant in joint activity with the State or its agents," quoting *United States v. Price*, 383 U.S., at 794."

L&G have continually avoided Rules of Evidence including the following:

Evidence is relevant if it tends to establish facts in issue. *LeRoi v. Pa. State Civil Service Commission*, 382 A.2d 1260 (Pa. Cmwlth. 1978).

"Commonwealth agencies shall not be bound by technical rules of evidence at agency hearings, and all relevant evidence of reasonably probative value may be received." 2 Pa. C.S. § 505.

The Pennsylvania Public Utility Commission, a Commonwealth agency, is not bound by technical rules of evidence at agency hearings and therefore may receive all relevant evidence of reasonably probative value.

If the evidence is relevant to the issues before the agency and of reasonable probative value, the agency may receive it. 2 Pa. C.S. § 505.

Hearsay evidence may generally be received and considered during an administrative proceeding.

See

A.Y. v. Commonwealth, Dep't of Pub. Welfare, Allegheny County Children & Youth Serv., 537 Pa. 116, 641 A.2d 1148, 1150 (1994).

Under the relaxed evidentiary standards applicable to administrative proceedings, as provided under 2 Pa. C.S. § 505, it is well-settled that simple hearsay evidence, which otherwise would be inadmissible at a trial, generally may be received into evidence and considered during an administrative proceeding. *D'Alessandro v. Pennsylvania State Police*, 937 A.2d 404, 411, 594 Pa. 500, 512 (2007).

Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Borough of E. McKeesport v. Special/Temporary Civil Serv. Comm'n*, 942 A.2d 274, 281 n.9 (Pa. Cmwlth. 2008).

The "Redacted/Denial lawyers (L& G)" refused to answer any evidence Complainant has brought forth, a voluminous amount of highly relevant, highly credible and reliable evidence of definite probative value that certainly meets the above criteria and which would constitute a preponderance of evidence, acceptable to any reasonable mind, that forced, chronic, long-term exposure, even at very low levels, to the radiofrequency radiation and RF fields produced by Met-Ed Electric's AMI wireless smart meters poses a substantive risk to health and safety.

The L&G attorneys violated these constitutionally citizens' private property rights:

Neither 52 Pa.C.S. §56.81(3), nor 66 Pa.C.S. § 1406(a)(4), nor does Act 129 or any other statute, regulation or policy relevant to the matter brought forth in this Complaint preempt, supervene, supersede or take precedence over citizens' private property rights.

In their original intent and as written, 52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) apply to meters, only to meters, and to nothing but meters.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to commercial-use, radiofrequency broadcasting antennas and transmitters.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to data communications devices used as "relay points to transmit data" that does not originate from the customers' homes or property.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to computers.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to devices such as 'switched mode power supplies' (SMPS) which produce high-frequency voltage transients of conducted emissions and/or which introduce, add to, or propagate such emissions through the electrical wiring of homes and buildings.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to devices which produce and/or augment emanation of electromagnetic fields (EMFs) from the electrical wiring of homes and buildings.

Without the Complainants' consent, Met-Ed Electric Utilities does not have the statutory authority, or right, pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), to use Complainants' homes in such a way as to irradiate them in perpetuity from their own premises with what has been found by IARC, on the basis of sufficient scientific evidence, to be a Group 2B possible human carcinogen.

There are many aspects not included in this Grievance From Denial Of Accommodation but are contained in the numerous Complaints. Most important is that both my wife and I have experienced major medical events over 30 years due to EMF, RF, WIFI & Dirty Electricity. All of which have left chronic residuals even we have taken expensive measures to minimize the effects. Adding a device to increase our exposure to additional toxic radiation in all forms is cruel and not acceptable.

The "Redacted/Denial lawyers (L& G)" refused to answer any evidence Complainant has brought forth, a voluminous amount of highly relevant, highly credible and reliable evidence of definite probative value that certainly meets the above criteria and which would constitute a preponderance of evidence, acceptable to any reasonable mind, that forced, chronic, long-term exposure, even at very low levels, to the radiofrequency radiation and RF fields produced by Met-Ed Electric's AMI wireless smart meters poses a substantive risk to health and safety.

The L&G attorneys violated these constitutionally citizens' private property rights:

Neither 52 Pa.C.S. §56.81(3), nor 66 Pa.C.S. § 1406(a)(4), nor does Act 129 or any other statute, regulation or policy relevant to the matter brought forth in this Complaint preempt, supervene, supersede or take precedence over citizens' private property rights.

In their original intent and as written, 52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) apply to meters, only to meters, and to nothing but meters.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to commercial-use, radiofrequency broadcasting antennas and transmitters.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to data communications devices used as "relay points to transmit data" that does not originate from the customers' homes or property.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to computers.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to devices such as 'switched mode power supplies' (SMPS) which produce high-frequency voltage transients of conducted emissions and/or which introduce, add to, or propagate such emissions through the electrical wiring of homes and buildings.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to devices which produce and/or augment emanation of electromagnetic fields (EMFs) from the electrical wiring of homes and buildings.

Without the Complainants' consent, Met-Ed Electric Utilities does not have the statutory authority, or right, pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), to use Complainants' homes in such a way as to irradiate them in perpetuity from their own premises with what has been found by IARC, on the basis of sufficient scientific evidence, to be a Group 2B possible human carcinogen.

There are many aspects not included in this Grievance From Denial Of Accommodation but are contained in the numerous Complaints. Most important is that both my wife and I have experienced major medical events over 30 years due to EMF, RF, WIFI & Dirty Electricity. All of which have left chronic residuals even we have taken expensive measures to minimize the effects. Adding a device to increase our exposure to additional toxic radiation in all forms is cruel and not acceptable.

In my case I have been granted a Permanent Disability Exemption from a Social Security Judge in 1994, acknowledging my Anomic & Expressive Aphasia, which is unfortunately permanent. This was caused by the professional usage of computers'/electronics' exposure starting in the late 70s. The numerous scientific information contained in all submissions attest to the cause of my wife's and my injuries.

L&G by ignoring the science of bioengineering are complicit /guilty of crimes against humanity as defined by the Nuremberg Code, the Helsinki Accord and the Federal Policy for the Protection of Human Subjects ('Common Rule') by subjecting their customers to the experiment of Smart Meter Technology. HHS Regulations 45 CFR part 46, and four subparts.

To those that are unfamiliar with Toxic Dirty electricity and it affects you are referred to the recognized expert in the field, Samuel Milham, MD, MPH and is documentary..."*DIRTY ELECTRICITY...Electrification and the Diseases of Civilization*" second edition 2012.

<https://www.amazon.com/Dirty-Electricity-Electrification-Diseases-Civilization-ebook/dp/B079J59Y8Z>.

Dirty Electricity tells the story of Dr. Samuel Milham, the scientist who first alerted the world about the frightening link between occupational exposure to electromagnetic fields and human disease. Milham takes readers through his early years and education, following the twisting path that led to his discovery that most of the twentieth century diseases of civilization, including cancer, cardiovascular disease, diabetes, and suicide, are caused by electromagnetic field exposure.

In the second edition, he explains how electrical exposure does its damage, and how electricity is causing our current epidemics of asthma, diabetes and obesity.

Dr. Milham warns that because of the recent proliferation of radio frequency radiation from cell phones and towers, terrestrial antennas, Wi-Fi and Wi-max systems, broadband internet over power lines, and personal electronic equipment, we may be facing a looming epidemic of morbidity and mortality. In Dirty Electricity, he reveals the steps we must take, personally and as a society, to coexist with this marvelous but dangerous technology.

Dr. Milham on xii of his Preface....." Dirty electricity rides along the sixty-cycle sine wave of alternating current (AC) power as high frequency voltage transients between two and one hundred kilohertz. It also is increasing found in ground currents returning to utility substations. They are caused by interruptions of current flow and by arching and sparking. Dirty electricity can be present on electrified wires anywhere and has been on them since the beginning of electrification. Ambient dirty electricity couples capacitively to the human body and induces electrical currents in the body.

PROFESSIONAL ENGINEERS ACT

(Business and Professions Code §§ 6700 – 6799)

INCLUDES AMENDMENTS MADE DURING THE 2017 LEGISLATIVE SESSION

(Effective January 1, 2018, unless otherwise noted)

6701. Professional engineer defined:

“Professional engineer,” within the meaning and intent of this act, refers to a person engaged in the professional practice of rendering service or creative work requiring education, training and experience in engineering sciences and the application of special knowledge of the mathematical, physical and engineering sciences in such professional or creative work as consultation, investigation, evaluation, planning or design of public or private utilities, structures, machines, processes, circuits, buildings, equipment or projects, and supervision of construction for the purpose of securing compliance with specifications and design for any such work.

6710.1 Legislative intent – protection of the public

Protection of the public shall be the highest priority for the Board for Professional Engineers, Land Surveyors, and Geologists in exercising its licensing, regulatory, and disciplinary functions. Whenever protection of the public is inconsistent with other interests sought to be promoted, the protection of the public shall be paramount.

The National Society of Professional Engineers has been instrumental in eliminating the Industrial Exception and our legislators were inspired to modify the Engineer’s Act to require”That such public utility shall employ at least one professional engineer, as defined in this act, who shall be in responsible charge of such utility’s engineering work.” The message is clear— public safety will not be compromised by reckless financial (and public health & safety) decisions, i.e., the end of utilities “acquiescence by silence” by avoiding infrastructure decisions based upon sound engineering principles.

Unfortunately the Industrial Exemption did exist during the time the Complainant had interactions with the Defendant’s questionable individuals, masquerading as engineers. The problem is that some of these individuals have retained their positions still lacking competence. That would account for the inept decision by the utility conducting the proper research on the biological and operational safety of the EMF-Emitting Invoicing Digital Meters (Smart Meters).

DISCIPLINARY ACTION:

There are sufficient grounds to demonstrate that major breeches of ethics and law practice as precedent setting case law has been ignored by Lepkoski & Geisler (L&G) , as the copious evidence above concludes. Additionally the fact that L&G are STEM deficient, as are their witnesses, they have unlawfully concocted a false narrative to subvert the Complainant’s Testimony and in doing so, perjured themselves, as did their in-house “experts” .

Most troubling is their collusion “under the color of law” with State of Pennsylvania’s Public Utility Commission and their agenized STEM deficient Administrative Law Justices participating in a diabolical HUMAN EXPERIMENT OF PA-PUC ALTERED “ACT 129 THE SMART METER PROGRAM” VIOLATING ALL NORMS OF PROTECTION OF HUMAN SUBJECTS AS REQUIRED UNDER HHS FEDERAL COMMON RULE 45 CFR PART 46, AS WELL AS THE NUREMBERG CODE & THE HELSKI ACCORD. SINCE THIS BORDERS ON CRIMINALITY THE MOST EGREGIOUS DISCIPLINARY ACTION IS REQUIRED.

THE DISCIPLINARY BOARD OF THE SUPREME COURT OF PENNSYLVANIA

COMPLAINT FORM

(Please Type or Print)

Date: January 18, 2024

YOUR INFORMATION:

Mr./Mrs.
Name: Miss/Ms. Last: Chenosky First: John MI: M. Suffix: PE
Address: 1000 Huffs Church Rd. POB 423 City: Alburtis State: PA ZIP: 18011
Telephone: (610) 845-0279 Email: Johnsuzy@dejazzd.com

ATTORNEY COMPLAINED OF:

Name: Last: Lepkoski First: Lauren MI: M. Suffix: _____
Office Address: Street: 2800 Pottsville Pike City: Reading State: PA ZIP: 19612
Telephone: 800 545 7741 County: Berks

LITIGATION:

If the attorney complained of represented or represents you in litigation (civil or criminal) please provide the caption, court, and docket number of the case.

PRIOR COMPLAINTS CONCERNING THIS MATTER OR THIS ATTORNEY:

Have you previously filed a complaint concerning this matter or this attorney with the Disciplinary Board, a Bar Association or its Fee Dispute Committee, any District Justice, Court, District Attorney, or any other agency or office?

YES NO If so, please identify the agency and specify the date and nature of your complaint and the action taken by the agency:

INSTRUCTIONS:

A written and signed statement of the facts must be filed with the Disciplinary Board before your complaint can be considered. Therefore, under *Statement of Complaint*, please fully and completely set forth the facts and circumstances of your complaint, including relevant dates, contacts you made with the attorney, the fee arrangement, dates and amounts paid to the attorney, services to be performed, the names and addresses of other individuals involved in the legal matter, *exactly what conduct you believe is unethical or illegal*, etc.

Please attach copies of all correspondence and/or documents relating to your case. If you send original documents and wish them returned to you, check here _____. If you have not attached any documentation, please explain why:

STATEMENT OF COMPLAINT: (Note: Attach as many additional pages as necessary to fully set forth all of the relevant facts and circumstances surrounding your complaint.)

INDEX OF DOCUMENTS IN THIS COMPLAINT

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- Formal "Grievance from Denial of Accommodation" PUC Administrative Law Court "THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED " 06DEC23
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- Response to PA SILC request for Life Experiences of Pennsylvanians With Disabilities
- Email 29DEC23 Outlining the Criminal Assault by the PA PUC & Utilities Weaponizing the Pennsylvania Justice System Against ADA Compliance of EMF/Dirty Electricity Disabled
- Testimony 01JUN20 ACCOMODATION OF OPT-OUT OF DIGITAL METERS less EXB. "O" & "X"

CONFIDENTIALITY:

Staff of the Office of Disciplinary Counsel (ODC) and the Board are required to maintain the confidentiality of complaints and related investigations and proceedings unless and until one of the exceptions to confidentiality, as set forth in Enforcement Rule 402, applies. ODC staff may interview the respondent-attorney or other persons who may have information that is relevant to your complaint, and may disclose information when disclosure is permitted or required by Court or Board Rules.

IMMUNITY:

Enforcement Rule 209(a) provides that any person who communicates with Disciplinary Counsel or the Board relating to misconduct by a respondent-attorney or gives testimony before a hearing committee or special master in a proceeding conducted pursuant to the Enforcement Rules, shall be immune from civil suit based upon such communication or testimony.

(Date)

(Your Signature)

THE DISCIPLINARY BOARD OF THE SUPREME COURT OF PENNSYLVANIA

COMPLAINT FORM

(Please Type or Print)

Date: January 18, 2024

YOUR INFORMATION:

Mr./Mrs. _____
Name: Miss/Ms. Last: Chenosky First: John MI: M. Suffix: PE
Address: S. 1000 Huffs Church Rd. POB 423 City: Alburtis State: PA ZIP: 18011
Telephone: (610) 845-0279 Email: Johnsuzy@dejazzd.com

ATTORNEY COMPLAINED OF:

Name: Last: Giesler First: Tori MI: L. Suffix: _____
Office Address: Street: 2800 Pottsville Pike City: Reading State: PA ZIP: 19612
Telephone: 800 545 7741 County: Berks

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If the attorney complained of represented or represents you in litigation (civil or criminal) please provide the caption, court, and docket number of the case.

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(Date)

(Your Signature)

John Chenosky

To: MDADACoordinator@pacourts.us; SupremeGrievanceOfficer@pacourts.us
Cc: pstefano@pasen.gov; lboscola@pasenate.com; rmatzie@pahouse.net;
'dmaloney@pahousegop.com'; tpennycuick@pasen.gov;
asalamone@mcall.com; WALSH, BOBBYGUNTHER (Gunther@iheartmedia.com)
Subject: GRIEVANCE FROM DENIAL OF ACCOMMODATION

Docket: C-2019-3007622

Pennsylvania PUC Administrative Law Court

Complainant: John M. Chenosky, PE

**THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM BY THE PUC &
UTILITIES AGAINST ADA COMPLIANCE OF EMF/DIRTY ELECTRICITY DISABLED**

After a stay of three years duration, I have been notified of a change of an ALJ ---the third change in the ALJ is a detestable move on the part of the PUC. I objected to this change in my email response to Susan Murray, 22NOV22 which notified me of the change, Murray never responded.

I am one of 108 Complainants still in limbo in this charade and probably the only one that has had three ALJs. There were many accommodations issued by ALJ Deputy Chief Cheskis for the discovery process which I believe the PUC was not happy with. I also believe ALJ Cheskis was about to rule in my favor and the PUC was having nothing of it, thus the third ALJ.

To restart this process is a hardship since I am a Pro Se Complainant. At 80 years old this process constitutes cruel and unusual punishment over a process that in many respects is criminal and in my view and others not unconstitutional as it violates the *Supremacy Clause*. And the CC ruling is not in accordance with the law passed by the PA Legislature. The lip service of the PA Judicial System when it comes to ADA compliance is frankly a joke. The spirit of ADA Compliance is supposed to embody compassion and empathy—none of that exists in PA government.

So as not to be misinterpreted--- I am seeking a TOTAL Accommodation. Based upon my involvement to date the process is compromised due to total ignorance of STEM

expertise and the Scientific Method (ex. citing 8 Industry papers v. thousands of Independent Studies of all aspects of the issue).

It is suggested that State Action Doctrine was never considered, i.e., in *Jackson v. Metropolitan Edison Co.*, 419 U.S. (1974) and in *Lugar v. Edmondson Oil*, 457 U.S. 922, 942 (1982), the Court stated:

"[W]e have consistently held that a private party's joint participation with state officials in the seizure of disputed property is sufficient to characterize that party as a 'state actor' for purposes of the Fourteenth Amendment. The rule in these cases is the same as that articulated in *Adickes v. S.H. Kress & Co.*, supra, at 152, in the context of an equal protection deprivation:

"Private persons, jointly engaged with state officials in the prohibited action, are acting "under color" of law for purposes of the statute. To act "under color" of law does not require that the accused be an officer of the State. It is enough that he is a willful participant in joint activity with the State or its agents," quoting *United States v. Price*, 383 U.S., at 794."

When I was naïve (in 2019) I thought that filing a Formal Complaint for an ADA Accommodation would invoke common sense especially as a Professional Engineer offering tangible evidence. My utility Met-Ed, Reading PA, has submitted testimony from two witnesses that have perjured themselves, have provided no significant background in either the implementation, biological impacts of Smart Meters, are both guilty of conflict of interest and PA Engineering Law Ethics. They will be facing Formal Complaints to be filed with the Engineering Division of Professional Licensing Agency.

At some point I will be filing disbarment complaints against both Met-Ed "lawyers". Not only have they violated rules of evidence they redacted all pertinent evidence in their Motion-To-Strike which in my last Testimony of 01Jun20, which I was never given a chance to respond to.

Evidence is relevant if it tends to establish facts in issue. *LeRoi v. Pa. State Civil Service Commission*, 382 A.2d 1260 (Pa. Cmwlth. 1978).

"Commonwealth agencies shall not be bound by technical rules of evidence at agency hearings, and all relevant evidence of reasonably probative value may be received." 2 Pa. C.S. § 505.

The Pennsylvania Public Utility Commission, a Commonwealth agency, is not bound by technical rules of evidence at agency hearings and therefore may receive all relevant evidence of reasonably probative value.

If the evidence is relevant to the issues before the agency and of reasonable probative value, the agency may receive it. 2 Pa. C.S. § 505.

Hearsay evidence may generally be received and considered during an administrative proceeding. See

A.Y. v. Commonwealth, Dep't of Pub. Welfare, Allegheny County Children & Youth Serv., 537 Pa. 116, 641 A.2d 1148, 1150 (1994).

Under the relaxed evidentiary standards applicable to administrative proceedings, as provided under 2 Pa. C.S. § 505, it is well-settled that simple hearsay evidence, which otherwise would be inadmissible at a trial, generally may be received into evidence and considered during an administrative proceeding. *D'Alessandro v. Pennsylvania State Police*, 937 A.2d 404, 411, 594 Pa. 500, 512 (2007).

Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Borough of E. McKeesport v. Special/Temporary Civil Serv. Comm'n*, 942 A.2d 274, 281 n.9 (Pa. Cmwlth. 2008).

Complainant has brought forth a voluminous amount of highly relevant, highly credible and reliable evidence of definite probative value that certainly meets the above criteria and which would constitute a preponderance of evidence, acceptable to any reasonable mind, that forced, chronic, long-term exposure, even at very low levels, to the radiofrequency radiation and RF fields produced by Met-Ed Electric's AMI wireless smart meters poses a substantive risk to health and safety.

Neither 52 Pa.C.S. §56.81(3), nor 66 Pa.C.S. § 1406(a)(4), nor does Act 129 or any other statute, regulation or policy relevant to the matter brought forth in this Complaint preempt, supervene, supersede or take precedence over citizens' private property rights.

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My Confidential Medical Information was provided which in retrospect the Commonwealth Court has concluded that Act 129 does not preclude accommodations of customers' health concerns, regardless of proof of harm. (Povacz et al. v. Pennsylvania Public Utility Commission, No. 492, C.D. 2019.) The Respondent's Interrogatories request for the production of Complainants' medical records and the ALJ's Order granting Med-Ed's Motion were erroneously predicated on requiring the Complainants to produce their medical records in order to pursue their due process

right to challenge the safety and/or reasonableness the installation of Med-Ed's Electric's AMI smart meters.

Consequently the outline of all my major injuries & comorbidities provided to Judge Cheskis does not require documentation.

THIS DOES NOT REQUIRE A SHOWING OF SECTION 1201 HARM, JUST A REQUEST THAT THE UTILITY CAN GRANT UNDER A CUSTOMER SERVICE POLICY.

In closing how can any reasonable person conclude that the Legislature did not provide an OP-OUT of the Smart Meter Program?

Everywhere else in the country that has a Smart Meter program in the country has that provision.

John M. Chenosky, PE

PA's "Canary in the Coal Mine"

Supreme Court Forms to be sent Certified Mail or SC ADA provide a FAX as an option to expedite.

EXHIBIT #ST-4

EVIDENCE SUBMITTED WITH THIS SURREBUTTAL- January 28, 2024

Formal "Grievance from Denial of Accommodation" PUC Administrative Law Court "THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED " 06DEC23.



The Pennsylvania
Judicial Center

Grievance from Denial of Accommodation

INSTRUCTIONS: If you filed a Request for Accommodation and feel your reasonable request was denied in whole or in part, or if the accommodation granted did not meet your needs, you may complete the following form and submit to the ADA Grievance Officer. (See list.)

Contact Information

Name: John M. Chenosky, PE Phone: 610-845-0279

E-Mail: johnsuzy@windstream.net

Address: 1000 Huffs Church Rd. POB 423
Alburtis, PA 18011

Best way to contact you: Above email

Court Information

Date you submitted your "Request for Accommodation": September 19, 2019

Date your request was denied: November 14, 2023

Appeal

In as much detail as possible please describe your original request, what the result of your request for accommodation was, and the reason you contend your original request was reasonable and why you should have been provided accommodations:

Docket: C-2019-3007622

Pennsylvania PUC Administrative Law Court

Complainant: John M. Chenosky, PE

THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM BY THE PUC & UTILITIES AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED

Grievance Continued

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So as not to be misinterpreted--- I am seeking a TOTAL Accommodation. Based upon my involvement to date the process is compromised due to total ignorance of STEM

Signature of Requestor or Person completing request: 

Relationship to Requestor & contact information (if applicable): _____

Date: 12-06-23

* You may add additional pages as necessary

** Please attach any documents or exhibits that support your grievance.

Note: You may have civil remedies under both State and Federal law. Often these remedies have filing deadlines. Filing this form with an ADA Grievance Officer will not preserve your filing date or extend the time for seeking relief elsewhere.

Grievance Continued

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Note: You may have civil remedies under both State and Federal law. Often these remedies have filing deadlines. Filing this form with an ADA Grievance Officer will not preserve your filing date or extend the time for seeking relief elsewhere.

Grievance Continued

Complainant has brought forth a voluminous amount of highly relevant, highly credible and reliable evidence of definite probative value that certainly meets the above criteria and which would constitute a preponderance of evidence, acceptable to any reasonable mind, that forced, chronic, long-term exposure, even at very low levels, to the radiofrequency radiation and RF fields produced by Met-Ed Electric's AMI wireless smart meters poses a substantive risk to health and safety.

Neither 52 Pa.C.S. §56.81(3), nor 66 Pa.C.S. § 1406(a)(4), nor does Act 129 or any other statute, regulation or policy relevant to the matter brought forth in this Complaint preempt, supervene, supersede or take precedence over citizens' private property rights.

In their original intent and as written, 52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) apply to meters, only to meters, and to nothing but meters.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to commercial-use, radiofrequency broadcasting antennas and transmitters.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to data communications devices used as "relay points to transmit data" that does not originate from the customers' homes or property.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to computers.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to devices such as 'switched mode power supplies' (SMPS) which produce high-frequency voltage transients of conducted emissions and/or which introduce, add to, or propagate such emissions through the electrical wiring of homes and buildings.

52 Pa.C.S. §56.81(3) and 66 Pa.C.S. § 1406(a)(4) do not apply to devices which produce and/or augment emanation of electromagnetic fields (EMFs) from the electrical wiring of homes and buildings.

* You may add additional pages as necessary

** Please attach any documents or exhibits that support your grievance.

Note: You may have civil remedies under both State and Federal law. Often these remedies have filing deadlines. Filing this form with an ADA Grievance Officer will not preserve your filing date or extend the time for seeking relief elsewhere.

Grievance Continued

Evidence is relevant if it tends to establish facts in issue. *LeRoi v. Pa. State Civil Service Commission*, 382 A.2d 1260 (Pa. Cmwlth. 1978).

"Commonwealth agencies shall not be bound by technical rules of evidence at agency hearings, and all relevant evidence of reasonably probative value may be received." 2 Pa. C.S. § 505.

"Commonwealth agencies shall not be bound by technical rules of evidence at agency hearings, and all relevant evidence of reasonably probative value may be received." 2 Pa. C.S. § 505.

The Pennsylvania Public Utility Commission, a Commonwealth agency, is not bound by technical rules of evidence at agency hearings and therefore may receive all relevant evidence of reasonably probative value.

If the evidence is relevant to the issues before the agency and of reasonable probative value, the agency may receive it. 2 Pa. C.S. § 505.

Hearsay evidence may generally be received and considered during an administrative proceeding. See

A.Y. v. Commonwealth, Dep't of Pub. Welfare, Allegheny County Children & Youth Serv., 537 Pa. 116, 641 A.2d 1148, 1150 (1994).

Under the relaxed evidentiary standards applicable to administrative proceedings, as provided under 2 Pa. C.S.

§ 505, it is well-settled that simple hearsay evidence, which otherwise would be inadmissible at a trial, generally may be received into evidence and considered during an administrative proceeding. *D'Alessandro v. Pennsylvania State Police*, 937 A.2d 404, 411, 594 Pa. 500, 512 (2007).

Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Borough of E. McKeesport v. Special/Temporary Civil Serv. Comm'n*, 942 A.2d 274, 281 n.9 (Pa. Cmwlth. 2008).

Date: _____

* You may add additional pages as necessary

** Please attach any documents or exhibits that support your grievance.

Note: You may have civil remedies under both State and Federal law. Often these remedies have filing deadlines. Filing this form with an ADA Grievance Officer will not preserve your filing date or extend the time for seeking relief elsewhere.

SBF7

Grievance Continued

Without the Complainants' consent, Met-Ed Electric Utilities does not have the statutory authority or right, pursuant to Act 129 and/or 52 Pa.C.S. §56.81(3) and/or 66 Pa.C.S. § 1406(a)(4), to use Complainants' homes in such a way as to irradiate them in perpetuity from their own premises with what has been found by IARC, on the basis of sufficient scientific evidence, to be a Group 2B possible human carcinogen.

There are many aspects not included in this Grievance From Denial Of Accommodation but are contained in the numerous Complaints. Most important is that both my wife and I have experienced major medical events over 30 years due to EMF, RF, WIFI & Dirty Electricity. All of which have left chronic residuals even we have taken expensive measures to minimize the effects. Adding a device to increase our exposure to additional toxic radiation in all forms is not acceptable.

In my case I have been granted a Permanent Disability Exemption from a Social Security Judge in 1994, acknowledging my Anomic & Expressive Aphasia, which is unfortunately permanent. This was caused by the professional usage of computers'/electronics' exposure starting in the late 70s. The numerous scientific information contained in all submissions attest to the cause of my wife's and my injuries.

My Confidential Medical Information was provided which in retrospect the Commonwealth Court has concluded that Act 129 does not preclude accommodations of customers' health concerns, regardless of proof of harm. (Povacz et al. v. Pennsylvania Public Utility Commission, No. 492, C.D. 2019.) The Respondent's Interrogatories request for the production of Complainants' medical records and the ALJ's Order granting Med-Ed's Motion were erroneously predicated on requiring the Complainants to produce their medical records in order to pursue their due process

Date: _____

* You may add additional pages as necessary

** Please attach any documents or exhibits that support your grievance.

Note: You may have civil remedies under both State and Federal law. Often these remedies have filing deadlines. Filing this form with an ADA Grievance Officer will not preserve your filing date or extend the time for seeking relief elsewhere.

66f7

Grievance Continued

right to challenge the safety and/or reasonableness the installation of Med-Ed's Electric's AMI smart meters.

Consequently the outline of all my major injuries & comorbidities provided to Judge Cheskis does not require documentation.

THIS DOES NOT REQUIRE A SHOWING OF SECTION 1201 HARM, JUST A REQUEST THAT THE UTILITY CAN GRANT UNDER A CUSTOMER SERVICE POLICY.

In closing how can any reasonable person conclude that the Legislature did not provide an **OP-OUT** of the Smart Meter Program?

Everywhere else in the country that has a Smart Meter program in the country has that provision.

John M. Chenosky, PE
PA's "Canary in the Coal Mine"

Supreme Court Forms to be sent Certified Mail or SC ADA provide a FAX as an option to expedite.

Signature of Requestor or Person completing request: _____

Relationship to Requestor & contact information (if applicable): _____

Date: _____

* You may add additional pages as necessary

** Please attach any documents or exhibits that support your grievance.

Note: You may have civil remedies under both State and Federal law. Often these remedies have filing deadlines. Filing this form with an ADA Grievance Officer will not preserve your filing date or extend the time for seeking relief elsewhere.

7 of 7

EXHIBIT #ST-5

EVIDENCE SUBMITTED WITH THIS SURREBUTTAL- January 28, 2024

**Motion for Indeterminate Stay 12JAN24 " THE WEAPONIZATION OF THE PENNSYLVANIA
JUSTICE SYSTEM BY THE PUC & UTILITIES AGAINST ADA COMPLIANCE & EMF & DIRTY
ELECTRICITY DISABLED.**

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

John M. Chenosky

v.

Metropolitan Edison Company

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:
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Docket No. C-2019-3007622

CERTIFICATE OF SERVICE

I hereby certify that I have served a true copy of Defendant Metropolitan Edison in answer to Defendant's **INCOMPLETE NOTICE TO PLEAD OF SEPTEMBER 01, 2020 AND ITS PERJURED RESPONSE AND VIOLATION OF EVIDENCE RULES.**

I also certify that I served a true copy of a New Matter:

MOTION OF THE COMPLAINANT FOR INDETERMINANT STAY AS CHENOSKY SURREBUTTAL TESTIMONY ORDERED BY DC ALJ CHESKIS ON 26DEC19 WAS STAYED BY THE PA PUC AND NEVER ALLOWED COMPLAINANT OPPORTUNITY TO ANSWER, WHILE THE PA PUC AND ALL UTILITIES CONDUCT A WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE EMF AND DIRTY ELECTRICITY DISABLED, PROVIDING AMPLE JUSTIFICATION FOR A STAY.

Service by First Class Mail, postage prepaid, as follows:

Lauren M. Lepkoski
Tori L. Giesler
FirstEnergy Service Company
2800 Pottsville Pike
P.O. Box 16001
Reading, Pennsylvania 19612-6001

Conrad A Johnson, Adm. Law Judge
Pennsylvania Public Utility Commission
Piatt Place, Suite220
301 First Avenue
Pittsburg, PA 15222

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 172105-3265

John M. Chenosky
P.O.B. 423
Alburtis, PA 18011,6108450279
johnsuzy@dejazzd.com

Date: January 12, 2024

John M. Chenosky

John Chenosky

I am in receipt of the subject with an impossible date of February 1, 2024 and the good cause for an in determinant timeframe follows. With an unprecedented third assigned ALJ with no explanation of the change, which I did not request and which I objected to in my email of November 21, 2022 to the PA PUC. No formal response was ever received.

For starters the Defendant never provided a complete Written Rebuttal (First Class Mail) required by Judge Cheskis in the written schedule below, lacking Exhibits JCA-1, JCA-2 & JCA-3. Without that information I cannot file a Formal Complaint against Defendants "expert" witness, John C. Ahr, before the Professional Compliance Officer of the Board of Professional Engineers.

My Formal Complaint against Defendant's "expert" witness, Ronald Long, Jr., P.E. has been received but a projected 9-12 month notice would not allow the evidence to be submitted.

As a Stipulated Protective Agreement that my wife and I would sign (not the Defendant's) was forwarded to ALJ Cheskis and the Defendant on December 13, 2019 and never signed and returned. A *CONFIDENTIAL OUTLINE* of my health records was included with that email and was the basis of Judge Cheskis' informed opinion that I could not participate in a normal procedure. Additionally HB974 proposed legislation amending the Right-To-Know Law to create a specific exception covering disability accommodations, exempts reference notes and working papers prepared by or for a public official or public employee that are used to accommodate an individual's disability. Commonwealth Court has concluded that Act 129 does not preclude accommodations of customers' health concerns, regardless of proof of harm. (Povacz et al. v. Pennsylvania Public Utility Commission, No. 492, C.D. 2019.)

Another issue that all the Utilities, the PUC and its agents avoid talking about is the unsupervised, illegal surveillance the Smart Meter software employs (never concocted by the Legislature). HB1278 has been introduced to amend Chapter 57 (*Wiretapping and Electronic Surveillance*) of Title 18 (*Crimes and Offenses*) of the Pennsylvania Consolidated Statutes, oftentimes referred to as the Pennsylvania Wiretap Act. Since its enactment, the Pennsylvania Wiretap Act and subsequent amendments have enabled prosecutors to obtain critical evidence for cases, while simultaneously respecting individual privacy. Utilizing this comprehensive statutory scheme in an era of increasingly complex communication provides the necessary guard rails of judicial oversight. A provision for unsupervised illegal surveillance the Smart Meter software employs needs to be added to this legislation.

I have yet to receive a transcribed Grievance Procedure and the ADA Compliance Officer for the PUC's Administrated Law Court, so I can file against AJG Watson who violated ADA Compliance and who contributed to my aggravated health while the Complaint was before him, ignoring the basic tenants of ADA Accommodation, and more importantly his lack of human decency.

I am in the process of filing Formal Complaints against the Defendant's Attorneys for perjuring themselves, acting "under the color of law" as willful participant in joint activity with the State and its agents, as well as, redacting and avoiding the rules of evidence in defiance of settled law and never answered any charges by Complainant that latent design and manufacturing defects resulting in mechanical failure & unsafe fire & explosion recorded occurrences, and/or biologic harm was demonstrated by the overwhelming evidence presented.

All of these complaints are important elements of this Docket moving forward, over which I have no control over the timing. ALL of the Documents you already have in your possession are hard copied and as I understand it, are posted to the PUC's e-service according to the PUC's Secretary, thus satisfying that requirement.

In my opinion Judge Cheskis already established the precedent under his ADA ACCOMODATION, i.e., written testimony as dictated in the above procedure and was the result of his letter (your Item #8, Attachment "A"). Is there anybody in your Administrated Law Court that can read English and that can follow the dots???

Cheskis took the time to understand the Disability of Anomic & Expressive Aphasia one of many co-commodities that will not permit Complainant's active participation.

On numerous occasions I explained my security concerns about PUC's Website E-F & ES and found it not secure, according to my security protocol and not user friendly. Therefore at this juncture I decline to avail myself of its use. First Class snail mail is what I have been using successfully, unfortunately the Defendant's lawyers have not.

In the Complainants view the Administrative Law Court of the PAPUC is apparently incapable of understanding all the medical conditions that prevent me from satisfying the requirements of an in-person hearing. And no interpreter is applicable.

So in detail the numerous reasons I cannot participate in person, as understood by ALJ Cheskis and his informed ADA Accommodation for Written Testimony in the trailing email.

Types of Aphasia

A stroke that occurs in areas of the brain that control speech and language can result in aphasia, a disorder that affects your ability to speak, read, write and listen.

Different aspects of language are in different parts of the left side of the brain. So your type of aphasia depends on how your stroke affects parts of your brain.

Wernicke's Aphasia (receptive)

If you have Wernicke's Aphasia, you may:

- Say many words that don't make sense.
- Use the wrong words; for instance, you might call a fork a spoon.
- String together a series of meaningless words that sound like a sentence but don't make sense.

Broca's Aphasia (expressive)

Injury to the frontal regions of the left hemisphere impacts how words are strung together to form complete sentences. This can lead to Broca's Aphasia, which is characterized by:

- Difficulty forming complete sentences.
- Leaving out words like "is" or "the."
- Saying something that doesn't resemble a sentence.
- Trouble understanding sentences.
- Making mistakes in following directions like "left, right, under and after."
- Using a word that's close to what you intend, but not the exact word; for example, saying "car" when you mean "truck."

Global Aphasia

A stroke that affects an extensive portion of your front and back regions of the left hemisphere may result in Global Aphasia. You may have difficulty

- Understanding spoken words and sentences.
- Forming words and sentences in a reasonable timeframe or under stress.

Anomic aphasia:

People with this kind of aphasia struggle to find words, especially names of objects or words that describe actions. To get around this problem, they often use several words to explain what they mean or non-specific words like "thing" instead. If you cannot understand the above maybe this will help. <https://aphasia.org/stories/different-types-aphasia/>. Over the last thirty two years and the numerous strokes (4) I experienced elements of all Aphasia types but Expressive and Anomic still persist. It does not allow spontaneity in speech and comprehension compounded by my hearing deficit and many people's speech (Valley Girl machine gun). All of this documented by several physicians and was used in a Social Security Judge's favorable award of SSI benefits in 1994.

The other comorbidities described in the outline emailed to ALJ Cheskis, include four(4) degenerative discs that does not allow sitting for any length of time and chronic headaches and tinnitus interrupts any normal attention span. I would hope that any reasonable person understands these chronic maladies.

Update— the stress induced and the time drafting this document sent my uncontrolled Blood Pressure this morning to stroke levels of 170/105.

Now since you have had this medical guideline information for over three(3) years and the technical expertise since 2019 do you really think your February 1, 2024 a realistic date?

Since a Smart Meter is NOT installed on either of my buildings I am in the process of obtaining an oscilloscope with a data logger to do background transient information. It should verify the "Dirty Electricity" causing my Nerve Block Malady. A Power Electrical Engineer, a PE, is excited about this testing and will oversee the operation. This exercise adds validity to an undetermined STAY time frame. A several months profile would be appropriate.

In March 5, 2009 the MADRI Steering Committee Meeting of Act 129 of 2008 issued an "Overview and Implementation" in which they altered the wording and intent of the law, Act 129 of 2008 and they set numerous objectives and benchmarks including affordable electric service. As my own benchmark would suggest that goal is a failure. In May 2022 residential rate was 6.83 c/ KWh and now the Defendant new rate is 11.306 c/KWh!! That is a 66% increase—SOME AFFORDABILITY. I am going to lists all of the requirements of ALL benchmarks and objectives and demand that you verify the results and be accountable.

It would appear to me as a Pennsylvania Professional Engineer that the PUC, Utilities and the PA Court System are living in an alternative reality, as they refuse to honor peer-reviewed INDEPENDENT studies about the mechanical deficiencies, fire safety and Biological Impacts of Smart Meters. The rest of the world operates on the Scientific Method of STEM scientific studies.

Yet this crowd who are STEM-deficient is leaving themselves liable knowing that over 20,000 studies (many Federal Government generated) are making them look agenized and not operating in the best interest of the Citizens of this Commonwealth, especially the disabled and EMF/RF sensitive.

Under Pre-Hearing Conference Order 22DEC23, Item 10, a *Pro Hac Vice* would have insufficient time or, technical or medical expertise to be effective representation.

John M. Chenosky, PE
Pro Se Complainant

SELF-EXPLANATORY EMAIL

From: Cheskis, Joel [<mailto:icheskis@pa.gov>]
Sent: Monday, December 16, 2019 3:43 PM
To: John Chenosky
Cc: llepkoski@firstenergycorp.com; tgiesler@firstenergycorp.com
Subject: RE: [External] Docket C-300-007622

Thank you for your email. I propose the following procedural schedule:

June 1, 2020 – pre-served written direct testimony from Mr. Chenosky
September 1, 2020 – pre-served written rebuttal testimony from Met-Ed
November 1, 2020 – pre-served written surrebuttal testimony from Mr. Chenosky

We can then discuss the procedure to follow at that time. My expectation, however, is that these pre-served pieces of written testimony will be admitted into the record with cross-examination waived and then I will render a decision based on that record. I intend to issue an order formalizing this schedule as soon as possible. I will also direct that I be copied on any discovery or other communications between the parties, except for settlement discussions, so that I keep stay on top of any problems that might arise, although, at this point, I expect that any discovery will be minimal.

Please let me know if you have any questions or concerns.

Thank you.

EXHIBIT #ST-6

EVIDENCE SUBMITTED WITH THIS SURREBUTTAL- January 28, 2024

Response to PA SILC request for Life Experiences of Pennsylvanians With Disabilities

Email 29DEC23 Outlining the Criminal Assault by the PA PUC & Utilities Weaponizing the Pennsylvania Justice System Against ADA Compliance of EMF/Dirty Electricity Disabled.

John Chenosky

From: John Chenosky <johnsuzy@windstream.net>
Sent: Friday, December 29, 2023 10:56 AM
To: spil@pasilc.org
Cc: dmaloney@pahousegop.com; tpennycuick@pasen.gov
Subject: THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM BY THE PUC & UTILITIES AGAINST ADA COMPLIANCE OF EMF/DIRTY ELECTRICITY DISABLED

TWIMC:

I hope that Subject Title gets everyone's attention. It is from a filed "Grievance from Denial of Accommodation"-- a desperate attempt to stop the implementation of Smart Meter(s) on our property. We and many others have been embroiled in this unlawful, unconstitutional, health disruptive technology not required by our State Legislature by OP-OUT provision in Act 129.

There are many aspects not included in this Grievance From Denial Of Accommodation but are contained in our numerous Complaints to the PAPUC and our Utility. Most important is that both my wife and I have experienced major medical events over 30 years due to EMF, RF, WIFI & Dirty Electricity. All of which have left chronic residuals that we have taken expensive measures to unsuccessfully minimize the effects. Adding a device to increase our exposure to additional toxic radiation in all forms is cruel and not acceptable.

In my case I have been granted a Permanent Disability Exemption from a Social Security Judge in 1994, acknowledging my Anomic & Expressive Aphasia, which is unfortunately permanent. This was caused by the professional usage of computers'/electronics' exposure starting in the late 70s. This has been further expanded by Digital Age devices, i.e., WIFI, LEDs, Smart Phones, Smart Meters, etc. in 2007 when we installed WIFI. This is explained in exquisite detail by Brown University's, Richard Lear's

<https://www.researchgate.net/publication/303673576> The Root Cause in the dramatic rise of Chronic Disease, and verified by Tens of Thousands of peer-reviewed white papers.

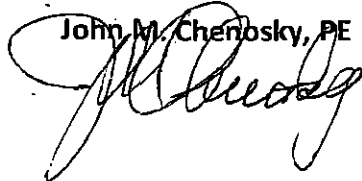
I have been under continuous treatment for high blood pressure, hypertension, Coronary artery disease, history of MI (myocardial infarction) with two stents and a PFO Patch, Arthropathy, Diabetes mellitus, Chronic & Continuous Headaches with migraines, Fatigue, Hearing loss, Tinnitus, Hyperlipidemia, Barrett's Esophagus, gall bladder issues, electro-hypersensitivity, Anomic & Expressive Aphasia, Tremors, and Stroke Syndrome (4 events). That was over the last 27 years, stand by. I won't bore you with all the medications I take.

My wife has been plagued with major heart events starting with acute orthostatic hypotension, developing heart palpitations, skipped beats and chronic low energy. An installed heart monitor diagnosed her condition as A-Fib with A-Flutter Left & Right side of Atrium placed on medication which was ineffective and opted for Ablation surgery. She as ongoing monitoring of A-Fib and now that she has new issues of Tachycardia & Valve Regurgitation, due to the entire Smart Meter Grid that Back-Feeds poisonous transients into our property.

John M. Chenosky, PE

Susan L. Lane

1000 Huffs Church Rd., POB 423 Alburtis, PA 18011



CONCLUSION:

Considering that many of the scientific concepts presented are beyond the comprehension of the general population, policy makers and government agencies, how those in position of authority accept studies and reports from Utilities and their manufacturers, who have a major conflict of interest, without corroborating evidence from Independent Scientists & Engineers, or, who provide opposing reviews and peer reviewed scientific and medical studies.

As a Licensed Pennsylvania Professional Engineer, I am required to reveal peer-reviewed STEM published information derived by "*The 400 year old Scientific Method*". I am legally obligated to disseminate this information when it impacts Public Health. I do not have the luxury of "acquiescence by silence", especially when tens of thousands reports of safety and biological harm dispute the Industry/Utility/PA PUC Narrative.

So based upon the overwhelming preponderance of the evidence the implementation of the installation of EMF-EITs (Smart Meters) in Pennsylvania is an unlawful exercise and presents a significant health risk to Complainant (and countless others), as well as, an unnecessary threat to his property due to latent design and construction of EMF-EIT, their multi-grounded neutral electrical distribution and its toxic "Dirty Electricity."

Respectfully Submitted,

John M. Chenosky, PE
Energy Specialist for 50 years

January 18, 2024

NOTE: It one actually read the documents provided, my Anomic & Expressive Aphasia does not permit me to testify verbally and a Court Order was issued for all written testimony. I will provide written responses to questions. This is an ADA Accommodation. Sorry and apologize for any misspelling or poor grammar.

INDEX OF DOCUMENTS IN THIS COMPLAINT

- Email 07DEC23 to MDADA Coordinator "GRIEVANCE FROM DENIAL OF ACCOMODATION"
- Formal "Grievance from Denial of Accommodation" PUC Administrative Law Court "THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED " 06DEC23
- Motion for Indeterminate Stay 12JAN24 " THE WEAPONIZATION OF THE PENNSYLVANIA JUSTICE SYSTEM BY THE PUC & UTILITIES AGAINST ADA COMPLIANCE & EMF & DIRTY ELECTRICITY DISABLED
- Response to PA SILC request for Life Experiences of Pennsylvanians With Disabilities Email 29DEC23 Outlining the Criminal Assault by the PA PUC & Utilities Weaponizing the Pennsylvania Justice System Against ADA Complianance of EMF/Dirty Electricity Disabled
- Testimony 01JUN20 ACCOMODATION OF OPT-OUT OF DIGITAL METERS less EXB. "O" & "X"

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

John M. Chenosky

v.

Metropolitan Edison Company

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Docket No. C-2019-3007622

DATE OF DEPOSIT

APR 8 2024

**PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU**

CERTIFICATE OF SERVICE

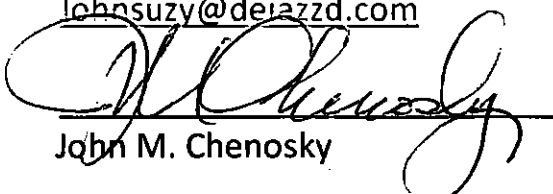
I hereby certify that I have this day served Defendant Metropolitan Edison Company a true copy of Complainant's Direct Testimony as ordered by Joel H. Cheskis, Deputy Chief Administrative Law Judge on December 26, 2019

Lauren M. Lepkoski
Tori L. Giesler
FirstEnergy Service Company
2800 Pottsville Pike
P.O. Box 16001
Reading, Pennsylvania 19612-6001

Joel H. Cheskis, Deputy Chief, ALJ
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
2 nd Floor, L-M West
Harrisburg, PA 17120

P.O.B. 423
Alburtis, PA 18011, 6108450279
johnsuzy@dejazzd.com

Date: June1, 2020


John M. Chenosky

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

John M. Chenosky

v.

Metropolitan Edison Company

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:
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Docket No. C-2019-3007622

DATE OF DEPOSIT

APR 8 2024

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

**ACCOMODATION OF OPT-OUT OF DIGITAL METERS EMF-EMITTING INVOICING TOOLS
FOR PHYSICAL DISABILITY/MEDICAL CONDITION DUE TO PROLONGED EXPOSURE TO
EMF MIROWAVE RADIATION AND TRANSIENT FREQUENCY AND STRAY CURRENT OF
HAZARDOUS MUTIGROUNDED NEUTRAL OF WYE ELECTRICAL DISTRIBUTION SYTEMS**

1 – ACCOMODATION BY FEDERAL & STATE GUIDELINES:

The proposed EMF-emitting invoicing tools (EMF-EIT) proposed by the Defendant, Metropolitan Edison, hereinafter referred to as Met-Ed, the Complainant avers that he is being discriminated against his right to enjoy his home on the basis of his disabilities from medical conditions created by prolonged (27 years) exposure to microwave radiation, EMF, transient frequency and stray current of hazardous multigrounded neutral WYE electrical distribution systems installed and maintained by the Defendant and other Pennsylvania utilities. The mainstream scientific database is replete with evidence of the biological harm created by this significant proliferation of installed inferior infrastructure and extensive evidence will be offered as prior submissions and additional testimony contained herein.

By their own submissions the Defendant and the PA PUC has maliciously feigned any OP-OUT accommodation, not responded to valid requests, or not engaging in any meaningful dialogue for reasonable accommodation. It appears to be the mode of operandi that is supported by the PA PUC and its Administrative Law Judges as the majority of attached list of cases has been denied. See Exhibit # O.

The reason Complainant is filing a housing civil rights complaint because the overwhelming preponderance of the evidence of the biological scientific harm of the proposed installation of EMF-emitting invoicing tools will deny my access and/or interfering with access to Complainant's home. That is unlawful and there are consequences under ADA and Fair Housing as described in the National Institute of Building Sciences document commissioned by the Federal Access Board.
<https://www.access-board.gov/research/completed-research/indoorenvironmentalquality>.

Since the Complainant was fortunate enough to stop the installation of the EMF-INTs on both the residence and the accessory use building at 1000 Huffs Church Road and the negative impact of that technology, he cannot claim any health effects from the EMF-INTs. Having said that every competent engineer (Complainant), knows EMF-INT communicate via microwaves. Now it is established that additional frequencies are transmitted in 2-50 kilohertz range and sometime much higher.

Numerous studies have shown repeatedly that those same frequencies disrupt the human nervous system. "Nerve Block" is the vernacular term and when the human body is exposed for 12-24 hours there is an accumulative saturation of the body that once side effects occur, there is no recovery and the damage is almost always permanent, as in Complainant's case. These studies are not controversial—no other studies show otherwise.

The studies are from the established science when it comes to electricity, i.e., the Institute of Electrical and Electronics Engineers (IEEE).

A recent paper by the same organization, "Electromagnetic Radiation Due to Cellular' WIFI and Bluetooth Technology: How Safe Are We?" describes the technology that is incorporated in wireless devices and although the EMF-INT is not specifically mentioned, the Defendant/PA PUC went out of their way to compare the technology of these devices in the propaganda sheet distributed by the PA PUC. A copy of the IEEE paper is included as Exhibit # E part of Answers to Interrogatories, Set 1 Amend.

An updated paper by the recognized Expert in Biological Effects, Dr. Martin Paul concludes the... "safety guidelines" have been known to be bogus for 40 years, based on findings of non-thermal effects at levels of exposure well below the those allowed...what is clear from this document, is that every single aspect of the safety guidelines is fatally flawed for multiple reasons." Exhibit "Z".

Eight Repeatedly Documented Findings Each Show that EMF Safety Guidelines Do Not Predict Biological Effects and Are, Therefore Fraudulent:

The Consequences for Both Microwave Frequency Exposures and Also 5G

Second Edition, May 23, 2019

Martin L. Pall, PhD, Professor Emeritus of Biochemistry and Basic Medical Sciences, Washington State University, martin_pall@wsu.edu

EMF-INT effects include:

1 - Lowered fertility, including tissue remodeling changes in the testis, lowered sperm count and lowered motility and other measures of lowered sperm quality, lowered female fertility including ovarian remodeling, oocyte (follicle) loss, lowered estrogen, progesterone and testosterone levels (that is sex hormone levels), increased spontaneous abortion incidence, lowered libido.

2 - Neurological/neuropsychiatric effects including sleep disturbance/insomnia; fatigue/tiredness; headache; depression/depressive symptoms; lack of concentration/attention/cognitive dysfunction; dizziness/vertigo; memory changes; restlessness/tension/anxiety/stress/agitation; irritability.

3 - Effects on cellular DNA including single strand and double strand breaks in cellular DNA and on oxidized bases in cellular DNA; also evidence for chromosomal mutations produced by double strand DNA breaks. These produce all of the important type of mutations, as described at the DNA level that have roles in cancer causation and in human whole organism mutation.

4 - Apoptosis/cell death (an important process in production of neurodegenerative diseases that is also important in producing infertility responses).

5 - Oxidative stress/free radical damage (important mechanisms involved in almost all chronic diseases; direct cause of cellular DNA damage).

6 - Endocrine, that is hormonal effects; Includes changes in non-steroid and also steroid hormones.

7 - Increased intracellular calcium levels, thought to be the cause in all other effects.

8 -Cancer including initiation, promotion and progression, further including tumor progression, tissue invasion and metastasis).

There are also 9 additional reviews on cardiac effects. Those cardiac effects, include tachycardia, arrhythmia and bradycardia (with bradycardia typically reported after long times of exposures). Some recent studies have also reported heart palpitations. Arrhythmias, especially when they are associated with either bradycardia or severe tachycardia, are often associated with sudden cardiac death. Sudden cardiac death causes over 5% of the total mortality in technologically advanced countries, so this could be a major source of EMF-caused fatality.

Significant evidence that was previously submitted needs to be included under this portion of the Complaint since the Defendant never answered any allegation.

IN ORDER OF SUBMISSION THESE DOCUMENTS INCLUDE:

Formal Complaint completed on PA PUC Standard Complaint Form, 29JAN19 including the following Exhibits:

- A-1 & 2** **Reasons for Complaint & Requested Relief**
- B-1, 2 & 3** **PA PUC Informal Complaint Form Sent 27/DEC18**
- C-1 & 2** **PA PUC "Smart Meter Q&A" Propaganda**
- D-1** **Email to Complainant's PA Rep. David A. Maloney Sent 04JAN19**
- E-1** **Respondent Unspecified Notification Letter**
- F-1** **Complainant's NO TRESPASS/NO INSTALL SMART METER email/letter**

Answer and Objection to New Matter & Preliminary Objection of Metropolitan Edison to the Complainant John M. Chenosky to the PA Public Utility Commission Answer to New Matter—Legal Insufficiency, 29MAR19.

Objections to Interrogatories and Objections to Requests for Production of Documents of Metropolitan Edison Company to John M. Chenosky, Set 1, 18JUL19.

Answer to Set 1 Interrogatories and Production of Documents to Metropolitan Edison Company from John M. Chenosky, 18JUL19.
Including the following Exhibits:

- ATI- 1a-g** **Petition: 26,000 Scientists Oppose 5G Roll Out, Principia Scientific International, 03JUN19. Note now approaching 250,000 signatures.**
- ATI- 2a-h** **Reported Biological Effects from Radiofrequency Radiation at Low Intensity Exposure (Cell Tower, WiFi, Wireless Laptop and "Smart" Meter RF Intensities)**
- ATI- 3a-b** **11APR19 Email to PA Legislators, "Pollution Collusion-Biological Effects EMF from Smart Meters"**

Objections to Metropolitan Edison Company Motion to Compel of July 29, 2019 and Motion to Dismiss Motion to Compel of July 29, 2019 as Submitted by Defendant Metropolitan Edison, 16AUG19.

Answers t Interrogatories Posed (ATI) by Defendant Metropolitan Edison to Complainant John M. Chenosky, Set 1 Amended

Including the following Exhibits:

Exhibit "X" Petition International Appeal Stop 5G on Earth and in Space

Exhibit "Z" Eight Repeatedly Documented Findings Each Show that EMF Safety Guidelines Do Not Predict Biological Effects and Are, Therefore Fraudulent: Martin Pall.

Motion of the Complainant to Compel Responses from Metropolitan Edison Company to Answer All Scientific Information Provided by the Complainant that Smart Meter Technology is Flawed and Provide Evidence that the PA PUC and Defendant Metropolitan Edison Used to Insure the Safety of the Children and Ratepayers of the Commonwealth, 21SEP19. Certificate of Service was never dated due to inadequate time established by the then ALJ and the Aphasia Limitations of the Complainant.

INADEQUATE LEGAL INTERPRETATION BY THE PA PUC REGARDING ACT 129

In all of the submissions referenced above the Complainant has provided statements regarding the misinterpretation of the legislation known as HB 2200 and actual quotes by several Representatives and Senators who challenged the resulting interpretation by the PA PUC.

Having minimal interest in the actual boilerplate, as the Act was supposed to be designed as Opt-Out according to information furnished to the populace, it wasn't until December 2018, when Complainant discovered the RUSE perpetrated by Godshall and the PA PUC.

The Complainant was at a loss to engage in a history lesson of legislative procedure and PA PUC internal workings and focused on the Accommodation for Disability and its supporting health issues. WOW! Uniquely describes the across-the-board State of Pennsylvania and its Agencies direct violation of ADA LAW both Federal and State.

Let me now introduce all to one of the finest dissection of bureaucratic incompetence the Complainant has ever seen in 50+ years of professional life.

1. Introduction

In Act 129 of 2008 (the Act), PA C.S. § 2807(f)(2) states:

(f)(2) Electric distribution companies shall furnish smart meter technology as follows:

- (i) Upon request from a customer that agrees to pay the cost of the smart meter at the time of request.
- (ii) In new building construction.
- (iii) In accordance with a depreciation schedule not to exceed 15 years.

Controversy has arisen over the Pennsylvania Public Utility Commission's (PUC's) implementation of this section of the Act. As can be demonstrated by the PUC's own Implementation Order of June 2009,¹ Met-Ed's Smart Meter Deployment Plan,² Pennsylvania's legislative history and various accounting and tax authorities and definitions, the PUC does not interpret the plain language of this law correctly.

The PUC Implementation Order of June 2009³ on page 14 states,

"The Commission believes that it was the intent of the General Assembly to require all covered EDCs to deploy smart meters systemwide when it included a requirement for smart meter deployment "in accordance with a depreciation schedule not to exceed 15 years."

Thus the PUC forces the plain language of § 2807(f)(2)(iii) into a mandatory smart-meter narrative which has thereby aided and abetted most electric distribution companies (EDCs) to force smart meters on all customers, even over their objections for various reasons. The PUC arrives at the incorrect conclusion that Act 129 creates a state-wide mandate of smart meters by covered EDCs by misinterpreting unambiguous legislative intent and misinterpreting plain legislative language that leaves no room for misinterpretation.

The PUC and EDCs have overridden the plain language meaning of § 2807(f)(2)(iii). The PUC interprets the language of furnishing of smart meters "in accordance with a depreciation schedule not to exceed 15 years" to mean covered EDCs must force smart meters on all customers within 15 years. In addition, the PUC conflates furnishing smart meters with removal of analog meters, when, in fact, the Act is silent on currently deployed analog meters.

The following discussion focuses on subparagraph (f)(2)(iii) of the Act:

¹ Docket No. M-2009-2092655

² Docket No. M-2013-2341990; Met-Ed's Smart Meter Deployment Plan is a joint deployment plan with Pennsylvania Electric Company (Docket No. M-2013-2341994), Pennsylvania Power Company (Docket No. 2013-2341993) and West Penn Power Company (Docket No. 2013-2341991). For purposes of this document, it will be referred to as Met-Ed's Deployment Plan.

³ Docket No. M-2009-2092655

“Electric distribution companies shall furnish smart meter technology as follows ...in accordance with a depreciation schedule not to exceed 15 years.”

Interpreting this as a mandatory roll-out of smart meters within 15 years lacks not only common sense, but also ignores a key term found in the law – “depreciation.” Since “depreciation” is an accounting or tax term, it is necessary to consider how applicable authorities define the term “depreciation.”

2. Accounting Clarity

Internal Revenue Code⁴ (IRC) § 167(a) and Treasury Regulation (Treas. Reg.) §1.167(a)-1(a) define depreciation as an allowance (deduction) for the exhaustion, wear and tear, and obsolescence of property used in a trade or business or property held for the production of income. Treas. Reg. §1.167(a)-1(a) goes on to dictate that depreciation deductions are allocated over an asset’s useful life.

*Black’s Law Dictionary*⁵ mirrors this, defining depreciation as a decrease in the potential of an asset over its lifetime. Various financial accounting authorities have the same or similar definitions, such as the Federal Energy Regulatory Commission (FERC).⁶ These definitions show that the terms wear and tear, exhaustion, or obsolescence are synonymous with the term depreciation. A depreciation schedule (or wear and tear schedule, exhaustion schedule, obsolescence schedule) is a schedule that ultimately defines an asset’s useful life, and allocates its cost over its useful life. In fact, Treas. Reg. §1.167(a)-1(b) defines useful life as the period over which an asset may reasonably be expected to be useful in a trade or business or for the production of income (not necessarily the useful life inherent in the asset – but its use in business or for income production).

FERC, when it comes to defining the term “depreciation”, mirrors what has already been presented above. In establishing standards for depreciation for accounting purposes, FERC wanted to ensure that electric utilities charge proper amounts of depreciation to expense in each financial reporting period for the purpose of allocating in a systematic and rational manner the cost of utility property to the periods which the property is used in utility operations (over its estimated useful service life).⁷ The definition of depreciation according to FERC’s Uniform System of Accounts for electric utilities is “the loss of an asset’s service value not restored by current maintenance.”⁸ This is further evidence that “depreciation” is an accounting term tied to the expenditure of the

⁴ Internal Revenue Code of 1986, as amended

⁵ <https://thelawdictionary.org/depreciation/>

⁶ The Federal Energy Regulatory Commission (FERC) is an agency that regulates the interstate transmission of electricity, natural gas, and oil. FERC also administers accounting and financial reporting regulations of regulated companies – such as electric distribution companies (EDCs).

⁷ 65 FR 47664, page 47666

⁸ 18 CFR 101. Definition No. 12

cost of an asset (such as a smart meter) over its period of use, or useful life. FERC does not somehow make the term "depreciation" mean deployment, nor does any other accounting or tax authority. "Deprecation" never means "deployment."

Based on the definition of "depreciation" and "useful life" as used in legal and accounting contexts, the plain statutory language of § 2807(f)(2)(iii) must be interpreted as follows – using terms synonymous with depreciation to aid in interpretation:

Electric distribution companies shall furnish smart meter technology as follows ... in accordance with a wear and tear, exhaustion, or obsolescence schedule not to exceed 15 years.

In other words, § 2807(f)(2)(iii) establishes the maximum service life of smart meters. This paragraph of the Act makes no reference to a mandatory roll-out of smart meters by all EDCs (regardless of their number of customers - which shall be addressed further below). It does not say nor can it be inferred in any way, that there is a required system-wide deployment of smart meters on a schedule of no longer than 15 years, as stated in the PUC's 2009 Implementation Order. This section of the Act does not refer to replacing AMR meters or analog meters. Rather it plainly spells out that AMI (smart meters) are to have a service period not to exceed 15 years and Met-Ed's Smart Meter Deployment Plan (discussed later) confirms this.

The General Assembly had also previously enacted laws including parameters regarding the term "depreciation" as part of the Public Utility Consolidated Statutes. Section 1703 of Title 66 states:

§1703. Depreciation accounts; reports.

(a) Accounts.--Every public utility shall carry on its books or records of account, proper and reasonable sums representing the annual depreciation on its property used or useful in the public service, which sums shall be based upon the average estimated life of each of the several units or classes of depreciable property. The commission, by appropriate order, after hearing, shall, except where found to be inappropriate, establish for each class of public utilities, the units of depreciable property, the loss upon the retirement of which shall be charged to the depreciation reserve. (underlining added).

66 Pa. C.S. 1703(a).

66 Pa.C.S. §1703 (b) states:

(b) Statements.--Every public utility shall file with the commission, at such times and in such form as the

commission may prescribe, statements setting forth the details supporting its computation of annual depreciation, as recorded on the books or records of accounts of the public utility. If the commission, upon review of such statements, is of the opinion that the amount of annual depreciation so recorded by any public utility is not reasonable and proper, it may, after hearing, require that provision be made for annual depreciation in such sums as may be found by it to be reasonable and proper. In making its findings, the commission shall give consideration to the experience of the public utility, and the predecessors of the public utility in accumulating depreciation reserves, the retirements actually made, and such other factors as may be deemed relevant. (underlining added).

66 Pa. C.S. §1703 (b).

Clearly the General Assembly was familiar with the term "depreciation" when it made a policy decision to specify the "useful life" for depreciation purposes relative to smart meters. That decision is consistent with Section 1703.

Section 2807(f)(2) in its entirety as written by the General Assembly means that the only way homeowners would be furnished their first smart meter was to request one and pay for its cost at time of such request, if the homeowner is living in existing construction. In new construction, smart meters "shall be furnished" or provided. Thereafter, the smart meter that was furnished must be replaced with a new smart meter over a period not to exceed 15 years.⁹

The Commission incorrectly interprets (f)(2)(iii) as a requirement for system-wide smart meter deployment within 15 years with no exceptions. The Commission has substituted "deployment and installation schedule" for "depreciation schedule." Nowhere does any authority define or use the terms "deployment" or "installation" as synonymous with the term "depreciation."

Furthermore, *Black's Law Dictionary* states: "Definition of **FURNISH**: To supply; provide; provide for use."¹⁰ Section 2807(f)(2) of the Act requires EDC's to FURNISH smart meter technology under three conditions only. It does not require the EDCs to install or deploy smart meter technology everywhere in their territories with no exceptions. Thus, neither "furnish" nor "depreciation schedule" can be in any legal way construed to mean "install" or "deploy", much less connote "mandatory deployment and installation."

⁹ It should be noted, there does not appear to be any prohibition from an EDC asking a customer if they would want to consent to the installation of a smart meter if a customer would not fall under 2807(f)(2)(i) or (ii). Instead, covered EDCs have been forcing smart meters on customers not falling under 2807(f)(2)(i) or (ii).

¹⁰ <https://thelawdictionary.org/furnish/>

Section 2807(f)(6) of the Act states that subsection (f) does not apply to EDCs with 100,000 or fewer customers. This does not mean that customers of all EDCs with 100,001 or more customers must accept a smart meter, rather it means that (f)(2)(i), (f)(2)(ii), and (f)(2)(iii) do not apply to EDCs with 100,000 or fewer customers. All this means is that an EDC with 100,000 or fewer customers does not have to furnish a smart meter upon request from a customer and that a smart meter does not have to be furnished in new construction. It does not mandate smart meters on customers of EDCs with 100,001 or more customers.

Section 2807(g) of Act 129 does include definitions of smart meter technology, including that it shall enable time-of-use rates, HOWEVER, the ONLY section of Act 129 that discusses how this technology "shall be furnished" is section (f).¹¹

3. Historical Clarity

Additional clarity is afforded by reviewing the third clauses of § 2807(f)(2) of the Printer's Numbers (PNs) of versions of House Bill 2200 that were NOT passed into law to see what language was excluded from the final version which was passed into law.

PNs 3218 and 3233 (February 11 and 12, respectively, 2008) both stated, "Electric distribution companies shall furnish smart meter technology to: ... (C) One hundred percent of its customers within ten years after the effective date of this paragraph."

The *House Journal* records numerous dissenting comments about the mandatory nature of these PNs.

- House Journal, February 11, 2008, pages 386-403 [p. 390 Mr. Hutchinson; 390-391 Mr. Godshall; p. 392 Mr. McCall; p. 393 Rep. Smith and Mr. Saylor; p. 395 Mr. Benninghoff; p. 397 Mr. Gabig]
- House Journal, February 12, 2008, pages 430-432 [p. 431: Mr. Hutchinson]

PN 4429 (September 23, 2008) stated, "ELECTRIC DISTRIBUTION COMPANIES SHALL FURNISH SMART METER TECHNOLOGY AS FOLLOWS: ... (III) IN ACCORDANCE WITH A SCHEDULE OF REPLACEMENT OF FULL DEPRECIATION OF EXISTING METERS."

Note here, that PNs 3218 and 3233 which mandated smart meters for all customers, and PN 4429 which made reference to retiring from service and replacing existing (mostly analog) meters were NOT PASSED INTO LAW. It is also worth noting that there would be no way to logically think "depreciation" could be synonymous with "deployment" in the paragraph above from PN 4429. It simply makes no sense. Also noteworthy is that PN 4429, again – which was NOT passed into law - would have required covered EDCs to replace fully depreciated existing (presumably analog/mechanical) meters that had exceeded their useful life with smart meters.

¹¹ As smart meters are provided to those who request one, and in new building construction, time of use rate requirements are honored.

However, this language in PN 4429 was changed, and is in sharp contrast to the language that was passed into law.

Any interpretation of §2807(f)(2)(iii) of the Act, such as the PUC and EDCs espouse, that it mandates smart meters for all customers or that it makes any reference at all to existing analog meters is erroneous, because those interpretations are based on language that the PA legislature purposefully modified and are based on language that was NOT PASSED INTO LAW. The prior PNs of the Act that were NOT passed into law should not have formed the basis for the PUC's Implementation Order of June 2009, which the PUC and all of its Administrative Law Judge's (ALJs) cite for the purpose of ruling against every single smart meter formal complaint to date.

In addition to the clear plain English understanding of Act 129 §2807(f)(2)(iii)'s reference to a 15-year depreciation schedule are the Senate Journal records of PN 4526, the version that WAS signed into law.

Discussion of PN 4526 in the Senate is recorded in the Senate Journal on October 8, 2008, pages 2626-2631, from which the following comments pertinent to smart meters and concerns about customers are taken. Here is a link:
(<https://www.legis.state.pa.us/WU01/LI/SJ/2008/0/Sj20081008.pdf#page=13>)

p 2626

Senator TOMLINSON.

It also contains language in there that we will have smart meters. **It is not mandated**, but it allows for the deployment of smart meters through a depreciation process, through new home construction process, and through the depreciation of 15 years, and **for anyone who wants to purchase a smart meter which they feel will help them manage their electric load better.**

p. 2627

Senator BOSCOLA.

We also made sure that smart meters would not be mandated for every single ratepayer. Not only is that a smarter approach to smart meter deployment, but it will also save electric customers hundreds of millions of dollars paying for something that will not provide a real benefit in their own households.

p. 2629

Senator FUMO

In addition, **we did not mandate smart meters, but we made them optional.** We did say in new construction, where they really are practical, they will be put in.

5. The PA PUC's Use of the Word "Depreciation"

In its Implementation Order of June 2009, on page 12 (where new construction is discussed), the PUC states the following: "As with all equipment, meters have a useful life. EDCs determine how much to invest in meter equipment based on its useful life

and have an opportunity to depreciate that investment over the useful life of the meter. In addition, EDCs have an opportunity to recover the cost of the meter from ratepayers."

As shown above, the PUC used the terms "useful life" and "depreciation" when discussing meters (including smart meters) and related those terms to the meter's cost over its useful life. This example taken from the PUC's 2009 Implementation Order illustrates that the PUC appears to know that "depreciation" is, in fact, an accounting term that relates to an expenditure for exhaustion, wear and tear, and obsolescence allocated over an asset's useful life. It also shows that the PUC should know that depreciation does not mean and has nothing to do with "mandatory deployment." Rather depreciation is a result of deployment of an asset.

After showing an understanding of what depreciation means on page 12, it is unclear how only two pages later in the Implementation Order, on page 14, the PA PUC states "The Commission believes that it was the intent of the General Assembly to require all covered EDCs to deploy smart meters systemwide when it included a requirement for smart meter deployment "in accordance with a depreciation schedule not to exceed 15 years." The PUC has consistently ruled that in using the terms "systemwide smart meter deployment", the PUC means that there can be no exception for any homeowner who objects to a smart meter on their property for any reason, including but not limited to adverse medical or health effects. There is simply no basis for this position.

Further, on page 29 of the Implementation Order where recovery of costs of "deployment and installation" of smart meter technology is discussed, the PUC states "these costs would include both capital and expense items relating to all plan elements, equipment and facilities, as well as an analysis of all administrative costs. More specifically, these costs would include, but not be limited to, capital expenditures for any equipment and facilities that may be required to implement the smart meter plan, as well as depreciation, operating and maintenance expenses." Once again – the PUC uses the term "depreciation" correctly as an accounting term as a cost resulting from the deployment of smart meters. "Depreciation" is not synonymous with the term "deployment" – rather the terms are separate and distinct.

The PA PUC's discussion of the recovery of costs in the paragraph above comes from Section 2807(f)(7) of Act 129 of 2008. Section 2807(f)(7) provides that part of the recoverable costs include annual depreciation and capital costs over the life of smart meter technology. In § 2807(f)(7), depreciation is clearly an expense for the exhaustion, wear and tear, and obsolescence of a smart meter. Based on the PUC's 2009 Implementation Order references to "depreciation" discussed above, the PUC appears to understand the correct meaning and usage of the term. It is not logical that "depreciation" should somehow be defined completely differently by the PUC (and to ascribe legislative intent which was entirely absent from actual wording and legislative discussion just prior to passage of the Act) solely for purposes of Section 2807(f)(2)(iii).

Additional historical clarity can be seen in the words of the PA PUC itself – as recently as December 19, 2019. In its Act 129 Total Resource Cost (TRC) Test for 2021¹², on page 21, the PA PUC discusses effective useful life and stated “While certain technologies may have an expected useful life greater than 15 years, Act 129 is clear about the 15-year limit, and any adjustment to the cost ledger would circumvent the legislative directive.” Here – the PA PUC correlates useful life with cost of a technology – providing additional evidence that the meaning of depreciation is fully understood. Also of note is the repetitive theme of a 15 year useful life seen in the Act.

4. Met-Ed’s Use of the Word Depreciation

In Met-Ed’s Smart Meter Deployment Plan¹³, on page 52, it states “for Capex,¹⁴ the estimated book lives used for depreciation purposes were 15 year for smart meters and communication equipment, 5 years for hardware and 7 years for software. Book lives were determined based on input from external resources and internal subject matter experts while tax lives were based on IRS guidelines.”

Like the PUC, Met-Ed also understands that depreciation is inherently a tax and accounting term that stands for an expense tied to the wear and tear of an asset over its useful life. It is also noteworthy that the book lives used by Met-Ed for smart meters and related communication equipment all coincide with § 2807(f)(2)(iii) in that they do not exceed 15 years. Met-Ed even stated that its internal subject matter experts agree. Also noteworthy is that § 2807(f)(7) states that an EDC may recover the reasonable and prudent costs of providing smart meter technology under paragraph (2)(ii) (new building construction) and (iii) (in accordance with a depreciation schedule not to exceed 15 years). The Act itself ties the costs of smart meter technology to a useful life not to exceed 15 years; and Met-Ed has acknowledged that legislative directive.

On page 76 of Met-Ed’s Smart Meter Deployment Plan it states “for meters that are removed or become obsolete due to the installation of smart meters (“Legacy Meters”), the Companies propose to retire the meters out of stock, continue their existing depreciation schedule unaltered over their remaining lives as a regulatory asset, and continue cost recovery through base rates.” The rate base equivalent of the regulatory asset for Legacy Meters plus the Cost of removal net of Salvage will continue to be included in the respective Company’s base rate. This protocol would have no current impact on customer rates. For accounting purposes, the Companies are asking the Commission to approve an accounting treatment that would allow them to create a “regulatory asset” for the Legacy Meters with a recovery schedule equal to the remaining depreciable lives of the assets per the Companies’ depreciation records.” (underlining added for emphasis).

¹² Act 129 discusses the TRC test being a standard test that is met if, over the effective life of each plan not to exceed 15 years, the net present value of the avoided monetary cost of supplying electricity is greater than the net present value of the monetary cost of energy efficiency conservation measures. Reference to the TRC is only made here to show the PA PUC’s correlation of cost to the useful life of technology.

¹³ Docket No. M-2013-2341990

¹⁴ This is an abbreviation for capital expenditure.

What the above paragraph from Met-Ed's Deployment Plan means is that Med-Ed (the EDCs) proposed to continue depreciating existing meters using the existing meters' regular depreciation schedules over their remaining lives to recover the full costs of those meters through base rates if they were taken out of service prior to the end of their useful life after forced deployment of smart meters resulting from the PUC's erroneous interpretation of the Act. In other words, this is a request by Met-Ed to continue charging customers for meters that are taken out of service until their full cost is recovered from the customer. But once again, and more importantly, in the paragraph above Met-Ed shows that depreciation is an accounting term tied to the cost of an asset and allocation of that cost over the useful life of the asset. In this instance depreciation is discussed for purposes of continuing to charge base rates, but the meaning of depreciation is again confirmed by Met-Ed to be the same as established throughout this analysis.

The PUC and Met-Ed appear to understand what depreciation means, and that Act 129 § 2807(f)(2)(iii) imposes a maximum 15 year limit on the service life of smart meters; yet both state repeatedly that Act 129 §2807(f)(2)(iii) imposes a mandated deployment of smart meters to all customers of covered EDCs. The PUC and Met-Ed thus are clearly capable of understanding and using the correct interpretation of the words "depreciation schedule", but not when they are defending their misinterpretation of legislative intent and the PUC's Implementation Order of June 2009.

Opt-Out Legislative Proposals

Time and time again in the PUC formal complaint administrative process, ALJ and PUC decisions have been rendered against smart meter complainants stating that the Act does not allow for opt outs. This fact is not contested as stated. The Act does not provide any legislative opt outs, because it was solely an "opt in" statute, which, of course, would not provide any opt outs.¹⁵ It is solely and unequivocally the PUC's misinterpretation of the legislative intent and meaning of the words "in accordance with a depreciation schedule not to exceed 15 years" that turned the Act into a mandatory no opt out smart meter deployment law; otherwise, if the PUC had not changed the legislative intent and meaning of the law, there would never have been a need to create an opt out.

The Act does allow small volume EDCs to not furnish smart meters to its customers if that EDC services 100,000 or fewer customers. That is, if a customer is served by a small volume EDC, that EDC does not have to furnish a smart meter to a customer upon the customer's request for a smart meter or in new construction.

¹⁵The absence of a plainly stated opt-out provision does not preclude a utility customer from declining a meter based on various unsafe conditions (including medical implications and negative health effects) that could be caused or exacerbated by smart meter radiofrequency emissions in accordance with 66 Pa. C.S. § 1501.

The PUC, Met-Ed and other utilities have either stated or insinuated that the existence of various smart meter opt-out bills proposed by the PA state legislature proves that the legislative intent of the Act was mandatory system-wide deployment.

This is patently false. The first smart meter Opt-Out bill was proposed in 2012 by State Rep. Mike Reese (House Bills 2186 and 2188 most recently reintroduced as four bills - House Bills 310, 311, 312 and 313). The initial Bills were introduced approximately three years AFTER the PUC's 2009 Implementation Order, and only one year after the PUC started to dismiss all smart meter formal complaints filed by Pennsylvania residents. The introduction of smart meter opt out bills, the most recent being Senate Bill number 791, introduced this session, was prompted by urging of constituents who were denied opt outs and accommodations in formal complaint filings in front of the PUC, and not for any other reason.

It is noteworthy that the first opt out bill was not introduced until years after the passing of the Act and the PUC's June 2009 Implementation Order, when the EDCs were starting their smart meter roll outs pursuant to the PUC's implementation orders, but not before then. Timing is key here and speaks volumes. Timing of the first smart meter opt out proposal in 2012 establishes the fact that opt out proposals were a response to the PUC's flawed Implementation Order and the PUC's refusal to change its flawed interpretation of the Act, and not because of any wording or plain language in the Act itself.

See, for example, the long string of formal complaint cases that the PUC had dismissed on the pleadings starting in 2011, cited by PECO in *Kreider v PECO* PUC Docket No.: C-2015-2469655, *PECO Energy's Petition for Reconsideration of the Commission's September 3, 2015 Order*, citing *Gavin v. PECO*, Docket No. C-2012-2325258 (Final Order entered, Jan. 24, 2012);

In PECO's Interlocutory Petition for Reconsideration in *Kreider*, PECO cited an unbroken string of formal complaint smart meter cases that the PUC had dismissed heretofore without a hearing, because the PUC had determined that Act 129 did not permit any opt outs:

"Indeed, no AMI meter cases have proceeded to a hearing on the right to opt out; each of PECO's cases has been dismissed on preliminary objection. See *Francis v. PECO*, Docket No. C-2014-2451351 (Final Opinion and Ordered entered, August 20, 2015); *Van Schoyck v. PECO*, Docket No. C-2015-2478239 (Initial Decision entered, June 19, 2015); *Larson v. PECO*, Docket No. C-2014-2451754 (Final Opinion and Ordered entered, June 11, 2015); *Antonio Romeo v. PECO Energy*, Docket No. C-2015-2479260 (Initial Decision entered, June 4, 2015); *Gerald H. Smith v. PECO*, Docket No. C-2014-2443198 (Final Opinion and Order entered April 23, 2015); *Vincent Feldman v. PECO*, Docket No. C-2015-2442308 (Initial Decision entered, April 1, 2015); *Margaret Hager, M.D. v. PECO Energy*, C-2014-2444961 (Final Order entered, March 12, 2015); *Ellen Donnelly v. PECO Energy*, Docket No.

F-2013-2330663 (Final Order Entered March 18, 2014); *Douglas Evans v. PECO Energy*, Docket No. C-2013-2368477 (Final Order entered, February 6, 2014); *Theresa Gavin v. PECO Energy*, Docket No. C-2012-2325258 (Order entered January 24, 2013); *Jeff Morgan v. PECO Energy*, Docket No. C-2013-2356606 (Final Order entered July 23, 2013); *Thomas McCarey v. PECO Energy*, Docket No. C-2013-2354862 (Final Order entered September 26, 2013); *Renney 1710mas v. PECO Energy*, Docket No. C-2012-2336225 (Final Order entered December 31, 2013); *Maria Povacz v. PECO Energy*, Docket No. C-2012-2317176 (Order entered September 28, 2012)."

"Moreover, the Commission has ruled consistently on the right to opt out issue with respect to other EDCs. *Gloria Corbett v. Pennsylvania Power Company*, Docket No. C-2011-2219898 (Final Order entered, May 27, 2011); *Richard Negley v. Metropolitan Edison Company*, Docket No. C-2010-2205305 (Final Order entered, March 3, 2011); *Richard Secrest v. West Penn Power Company*, Docket No. C-2013-2356667 (Final Order entered, Jun. 11, 2013); *Corbett v. Pennsylvania Power Company*, Docket No. C-2011-2219898 (Order entered May 27, 2011); *Jones v. Metropolitan Edison Company*, Docket No. C-2011-2224380 (Order entered June 28, 2011); *Griffin v. Metropolitan Edison Company*, Docket No. C-2012-2300172 (Order entered July 31, 2012); *Brake v. West Penn Power Company*, Docket No. C-2013-2367308 (Order entered November 14, 2013); *Drake v. Pennsylvania Electric Company*, Docket No. C-2014-2413771 (Order entered June 12, 2014); *Efaw v West Penn Power Company*, Docket No. C-2014-2413744 (Order entered June 12, 2014); *Sean Loughry v. PPL Electric Utilities Corp.*, Docket No. C-2014-2445932 (Order entered March 2, 2015)."

Krieder v PECO op cit, PECO Energy's September 18, 2015 Petition for Reconsideration of the Commission's September 3, 2015 Order fn 4.

Legislators clearly remarked as to the non-mandatory intent of PN 4526, and any subsequent effort by anyone to reach out to the PUC to remark about such intent fell on deaf ears as evidenced by complaint after complaint. As shown by a letter written by PUC counsel dated March 20, 2018 related to docket number C-2018-3000222, the PUC has taken the posture that the only way it would change its implementation order was if there was a ruling from a higher court or the Act was amended. At the same time, In the PA PUC's Public Meeting held April 15, 2010,¹⁶ in discussing the deployment process of smart meters and related timeframes on page 10, it states that the PUC Administrative Law Judge (ALJ) "found that the *Implementation Order* is not a regulation and does not have the full force and effect of law. Instead, it acts as a policy to provide guidelines to EDCs regarding the Commission's expectations about smart meter plans."

¹⁶ Docket No. M-2009-2123950

That statement contradicts the need for a ruling from a higher court or an amendment to the Act for the PUC to change its Implementation Order. If its Implementation Order does not have the full force and effect of law, then why would a law (that has been completely misinterpreted by PUC) need to be re-written? Why would a higher court need to make a ruling? The answer is that neither needs to take place. The PUC itself states that its Implementation Order is a policy not having the full force and effect of law, yet it refuses to re-address its erroneous policy in the face of overwhelming evidence (well beyond a preponderance of the evidence) that it has misinterpreted the plain language of the Act, the legislative intent of the Act and the constitutionality of its Implementation Order. The PUC can change its erroneous and illegal policy; and does not need an appellate court or the PA state legislature to do so.

Associated Costs of Smart Meters and Related Equipment

Section 2807(f)(7) says “an electric distribution company may recover reasonable and prudent costs of providing smart meter technology under paragraph (2)(ii) and (iii),¹⁷ as determined by the commission. This paragraph includes “annual depreciation and capital costs over the life of the smart meter technology and the cost of any system upgrades that the electric distribution company may require to enable the use of smart meter technology.....”

Yet again – the General Assembly correctly applies the term “depreciation” in the context of the Act. Depreciation is clearly a cost allocated to the life of a smart meter. Depreciation means the same thing here as it does in Section 2807(f)(2)(iii). Depreciation means depreciation, not deployment.

Additionally, Section 2807(f)(7) does not require that smart meters must be furnished to every customer without exception in order for EDCs to allocate the cost of new systems enabling the use of smart meters. Section 2807(f)(7) makes no such inference, directly or indirectly.

Time of Use Rates

EDCs and the PUC have also argued that because time of use rates are a requirement under the Act, there must also be mandatory system-wide deployment of smart meters with no exceptions.

Clearly – that is not the case because EDCs with 100,000 or fewer customers do not need to participate in the smart grid, and customers served by those EDCs may not force their EDC to offer them smart meters or time of use rates, either. But more importantly, EDCs with 100,001 or more customers may still have customers who request a smart meter and agree to pay for it, and those EDCs will still be furnishing smart meters in new construction. Therefore, time of use rates are being implemented in accordance with the Act 129 to those who request them, and in new construction. Time of use rates, however, do not somehow turn 2807(f)(2)(iii) into a mandatory smart

¹⁷ Specifically, this is referring to 2807(f)(2)(ii) and (iii).

meter deployment for all customers of EDCs with 100,001 or more customers. The language of the law does not support it. Once again, 2807(f)(2)(iii) only means that smart meter technology has a useful life not to exceed 15 years. At least every 15 years, smart meters which have already been deployed must be replaced because the Act requires it, and the PUC and Met-Ed appear to know this.

PA PUC'S ABILITY TO CHANGE ITS IMPLEMENTATION ORDER

In the PA PUC's Public Meeting held April 15, 2010¹⁸ (the joint petition of Met-Ed and other EDCs), the discussion on page 9 states the following: "In Commission proceedings, the proponent of a rule or order bears the burden of proof. 66 Pa. C.S. § 332(a). To satisfy that burden, the proponent of a rule or order must prove each element of its case by a preponderance of the evidence. *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600 (Pa. Comwlth. 1990). A preponderance of the evidence is established by presenting evidence that is more convincing, by even the smallest amount, than that presented by the other parties to the case. *Se-Ling Hosiery v. Margulies*, 364 Pa. 45, 70 A.2d 854 (1950). Additionally, the Commission's decision must be supported by substantial evidence in the record. More is required than a mere trace of evidence or a suspicion of the existence of a fact sought to be established. *Norfolk & Western Ry. Co. v. Pa. PUC*, 489 Pa. 109, 413 A.2d 1037 (1980)."

In this same document (Docket No. M-2009-2123950), as mentioned above, in discussing the deployment process of smart meters and related timeframes on page 10, it states that the PUC Administrative Law Judge (ALJ) "found that the *Implementation Order* is not a regulation and does not have the full force and effect of law. Instead, it acts as a policy to provide guidelines to EDCs regarding the Commission's expectations about smart meter plans."

The evidence presented herein is overwhelming that Section 2807(f)(2)(iii) establishes a maximum service life of smart meters and nothing further. The legislative intent is clear. "Not mandatory" means no forced deployment over a customer's objections. There is no evidence to support the PUC's position that Section 2807(f)(2)(iii) mandates deployment of smart meters to all customers not covered by Section 2807(f)(2)(i) and (ii). Accordingly, and by a preponderance of the evidence, the PUC should reverse its incorrect interpretation of Section 2807(f)(2)(iii). This reversal does not require ruling from an appellate court or an amendment to the Act, although either would serve to accomplish the same end result based on the PUC's refusal to address the issue.

5. Conclusion

Taken *in toto*, Act 129 § 2807(f)(2)(iii), as per the definition of depreciation based on the authorities discussed herein, as used repeatedly in the PA Public Utilities Code, and mirrored by the PUC's Implementation Order and Met-Ed's Smart Meter Deployment Plan, sets a cap on the service period of smart meters, dictating their service life not exceed 15 years. Even Met-Ed's deployment plan agrees. The final version of § 2807

¹⁸ Docket No. M-2009-2123950

passed into law says nothing about replacing electromechanical analog meters and nothing about universal forced deployment of smart meters. No such inferences as these can be made from the statutory language of Act 129, from the "intent" as recorded in the *House and Senate Journals* in the legislative history of HB 2200 that became Act 129, nor in the changes to the Bill wording through each Printer's Number, culminating with the final version (PN 4526) passed into law.

Thus, I have found no basis on which the PUC can justify its mandate of universal forced deployment of smart meters in their Implementation Order of June 2009 and all subsequent PUC formal complaint holdings and Implementation Orders. Consequently, the EDCs, including Met-Ed, have no legal basis on which to force smart meters on all of their customers.

I am NOT requesting nor have I ever requested a smart meter. I DO NOT live in new building construction – and therefore am not required to have a smart meter under any legal interpretation of Act 129. I do not have a smart meter that has exceeded its useful life; in fact, I do not have a smart meter at all. The reason I do not have one is because I did not request one, and I do not live in new building construction. I will repeat – I do not want a smart meter and there is no reason under the law that I must accept one on the electric sockets of either of the ~~buildings~~ I own as a condition of receiving electricity from my EDC at those locations. Section 2807(f)(2)(iii) only deals with furnishing smart meters that have exceeded their useful life (not to exceed 15 years). It does not require me or anyone else similarly situated to have a smart meter.

RE-VISIT DOCKET C-2017-2638380:

The above docket outlined the multiple grievances the Complainant has experienced since he constructed his residence and accessory use building starting in 1998 and is incorporated here as summited in total. The response from the Defendant was nothing more than denial of the facts and replete with errors. Because of numerous issues including chronic health conditions and insufficient time to research the numerous legal and technical issues, the Complainant was forced to suspend this action. It is still under the three year window for resubmission and is a perfect segue into "Dirty Electricity" and the Wye Electrical Distribution Network in this State.

In December 2019 the Defendant did me a favor by threatening cancellation of my electric service if I didn't install a Smart Meter, embarking on a "Mission from God" (Blues Brothers Film-Akroyd) and a 2 yearlong scientific/engineering study of biologically effects of microwave radiation and dirty electricity, fulfilling my CPC requirements for my Professional Engineering License in the process. I've read and absorbed at least several hundred Scientific Papers and 10 or more books, which in my view, uniquely qualifies me as an Expert Witness. How does that fit the Judicial Process in this matter?

How do experts qualify to testify? According to FRE 702?--, "Knowledge, skill, experience, training, or education"; note the conjunction "or." This means that you only need to have one of the above characteristics to testify, not all five, albeit a case can be made that I qualify in all. Apparently this flies in the face of the majority of ALJ's rulings of the PA PUC in EMF-EIT complaints and appeals.

In the continuing Saga of this Defendant's incompetence, the power went out in my accessory use building late summer of 2019. I met with the responding lineman late one summer's evening as he descended from his hydraulic bucket, after he examined Transformer (#25) (the transformer I was forced to purchase according to Defendant's interpretation of its Tariff). This is the same Transformer engineering personnel in Reading accused me of lying about-- a contract I was forced to sign and then admitted they could not locate---subject Docket Exhibits show its existence.

Interestingly the lineman left me with the impression that the relatively new transformer that I purchased needed to be replaced. Next morning power was restored. There was no courtesy call or explanation ever offered to date regarding the condition of the Transformer, or, whether it was replaced—typical of Met-Ed.

Tariff or not let's explore how this matter should have been handled from the beginning ---in my interest:

My home is serviced from a transformer installed on an adjacent service pole (in an easterly direction) in the R-O-W on my 700' frontage. That transformer also supplies power to my neighbor at 999 Huffs Church Road.

In Complainant's World of logical and critical thinking I have to question why they did not disconnect my house from the adjacent pole shared transformer?? After installing the new Transformer (#25) all they have to do was feed my House Service from this newly PURCHASED TRANSFORMER.

I believe the Defendant used this opportunity to skirt their own PUC-approved tariff since I purchased the transformer (which I still contend I should not have had to). The Transformer that I own has the capacity (or so I was told for both buildings) and would be a more efficient and practical installation. Notwithstanding eliminating or minimizing the voltage transients caused by oscillation of my neighbor's Smart Meter trying to find the nearest tower over a mile away.

According to my electrical consultant, "Dirty Electricity" is back-fed from the shared transformer into my electric service from by neighbor's Smart Meter. Anytime he does anything unusual to increase his load, e.g., welding, it produces voltage variants and microwave radiation that impacts my wife's A-Fib and tinnitus and my chronic headaches and nerve block maladies to name a few.

The other problem is the big commercial solar arrays. They have inverters, thousands of them if they're big arrays. They all make dirty electricity. If your utility has got an appreciable wind or solar component, it's, by definition, giving you dirty electricity (DE). Says the dean of this anomaly, Dr. Sam Milham, MD, MPH and epidemiologist who has conclude the biological activity of DE couples capacitively to humans and animals and induces harmful levels of electrical current in their bodies. Numerous citings have been provided in other submissions reinforcing this position.

As long as you're talking about inverters, you go into micro waste – All transmitters, AM, frequency modulation (FM) and especially cell towers. Your cellphone works because there's a transmitter out there that transmits to you says Dr. Milham.

They all run on DC. Every cell tower in the world has a huge inverter in it to make the DC to run the transmitter and also to charge the backup batteries. They make dirty electricity by the ton.

Lots of schools have cell towers on campus. What they're doing is they're bathing the kids. It gets back into the wires, the lot wires and power wires that service it. The grid becomes an antenna for all this dirty electricity. It extends miles downstream. The way you can get a distance figure is there's a clever study done in Brazil where they looked at deaths from cancer [and] distance of residence from the base of the cell tower. They got effects out there to 500 meters. That's 1,500 feet. I'll tell you, the cell tower can't talk that far. It's the dirty electricity – the EMI in the grid, in the wires running into your house, through the ground and through your power cords – that's doing it. Transcript of Dr. Joseph Mercola's interview of Sam Milham on his website.

Hazardous Multigrounded Neutral Distribution System & Dangerous Stray Currents:

Information and conclusions drawn in this segment is from an IEEE Copyrighted Paper No. PCIC-03-03, retired author Donald W. Zippe, PE, Life Fellow, IEEE, and it includes some direct quotes or paraphrasing.

In order to fully comprehend the detrimental effects of allowing the earth to continuously conduct electric current it is imperative that one understands the history and how the utilities elected to use an unsafe electrical distribution method. It was shown that earth return had been tried in the early days of electrical distribution and found to be too hazardous and harmful to not only the human population but also to animals.

When there exists more than one electrical connection to earth, no matter what the resistance of the earth is, there will always be some amount of hazardous electric current flowing continuously over and through the earth uncontrolled, by experiment it can be seen that any current exceeding 9 milli-amperes (0.009 A) can be hazardous to humans.

Thus we can now define "stray current" as the continuous flow of any current, other than momentary fault current, over the earth, metallic piping, building steel, into houses and farms, etc. which is thus objectionable and undesirable to the continued good health of humans and animals.

When there exists more than one electrical connection to earth, no matter what the resistance of the earth is, there will always be some amount of hazardous electric current flowing continuously over and through the earth uncontrolled. With a multi-grounded neutral distribution system it is necessary to have an electrical connection to earth at least 4 times per mile to keep the voltage on the multi-grounded neutral from exceeding approximately 25 volts making it safe for the linemen should they come into contact with the neutral and the earth. See NESC Rule 096 C in the section on the National Electrical Safety Code.

With the multi-grounded neutral conductor connected to earth at least 4 times per mile and at each transformer and lightning arrester there are now multiple paths over and through the earth that the hazardous electric current can flow over continuously, uncontrolled. On/In Complainant's property the Defendant installed six(6) in 750 ft. +/- in violation of Code.

Interestingly since the Substation was installed on the adjacent Latshaw Farm there have been multiple poles connecting the expanded service south on Benfield many have a grounded neutral. Since the installation of the Benfield Substation, the entire herd of Latshaw's milking cows has been sold off. Complainant was provided a hardship excuse when Complainant queried the Farmer that doesn't seem to fit the situation. Complainant suspects that the cows were not producing due to stray currents of the poorly designed Sub-Station and supporting infrastructure. Perhaps the deal Latshaw Estate struck with the Defendant is not the financial windfall that was expected and the 60% owner had to take a foundry job just to make ends meet.

By combining the white wire, the neutral return current conductor carry incontinuous electric current with the noncontinuous current carrying equipment grounding conductor the utilities have saved billions and billions of dollars over 50 or more years. The problem is that the utilities have used the earth as a partial return for the neutral current allowing the neutral current to continuously flow uncontrolled over the earth, which has caused irreparable and irreversible harm to dairy herds and pig farms and has caused electric shocks to humans and many have resulted in electrocutions.

Public Service Commissions and Utilities are obligated to provide adequate electrical service without any adverse effects. It is irresponsible to permit stray uncontrolled electric current to flow into and over private property. This act is hidden from view, as the public is very unaware of what is being done by the utilities. It is not advertised on TV nor is information included in the bill sent to the utility customers.

The distribution line and the product, electrical energy, are inseparable and thus become one. A Court (Black v. Public Service & Gas Co.) has concluded that electricity is a product by holding as follows: "It is no answer for a company engaged in the public sale of such a highly destructive agency as electricity to say that precautionary measures which may have been adequate to meet the test of due care 50 years ago when the lines were installed, must be regarded as sufficient in modern industrial society."

EMF-Emitting Invoicing Tools (Digital Maters) fit that unsafe designation as the overwhelming evidence has been presented throughout both Dockets with their submissions and exhibits.

And the court de tat the Defendant has usurped Complainant's internal wiring system for the enhancement of their electrical system in order to reduce the utility's costs for the benefit of the transformer. The National Electrical Code (NEC) requires the neutral in the service disconnect and overcurrent panelboard to be connected to the earth through the grounding conductor. Now there is a second connection to earth. A parallel connection of the neutral to earth now exists permitting current to flow continuously uncontrolled over the earth.

PROFESSIONAL ENGINEERS ACT

(Business and Professions Code §§ 6700 – 6799)

INCLUDES AMENDMENTS MADE DURING THE 2017 LEGISLATIVE SESSION

(Effective January 1, 2018, unless otherwise noted)

6701. Professional engineer defined:

"Professional engineer," within the meaning and intent of this act, refers to a person engaged in the professional practice of rendering service or creative work requiring education, training and experience in engineering sciences and the application of special knowledge of the mathematical, physical and engineering sciences in such professional or creative work as consultation, investigation, evaluation, planning or design of public or private utilities, structures, machines, processes, circuits, buildings, equipment or projects, and supervision of construction for the purpose of securing compliance with specifications and design for any such work.

6710.1 Legislative intent – protection of the public

Protection of the public shall be the highest priority for the Board for Professional Engineers, Land Surveyors, and Geologists in exercising its licensing, regulatory, and disciplinary functions. Whenever protection of the public is inconsistent with other interests sought to be promoted, the protection of the public shall be paramount.

The National Society of Professional Engineers has been instrumental in eliminating the Industrial Exception and our legislators were inspired to modify the Engineer's Act to require"That such public utility shall employ at least one professional engineer, as defined in this act, who shall be in responsible charge of such utility's engineering work." The message is clear— public safety will not be compromised by reckless financial decisions, i.e., the end of utilities "acquiescence by silence" by avoiding infrastructure decisions based upon sound engineering principles.

Unfortunately the Industrial Exemption did exist during the time the Complainant had interactions with the Defendant's questionable individuals, masquerading as engineers. The problem is that some of these individuals have retained their positions still lacking competence. That would account for the inept decision by the utility conducting the proper research on the biological and operational safety of the EMF-Emitting Invoicing Digital Meters.

CONCLUSION:

Considering that many of the scientific concepts presented are beyond the comprehension of the general population, policy makers and government agencies, how those in position of authority accept studies and reports from Utilities and their manufacturers which have a conflict of interest, without corroborating evidence from Independent Scientists & Engineers, or who provide opposing reviews and peer reviewed scientific and medical studies.

So based upon the overwhelming preponderance of the evidence the implementation of the installation of EMF-EITs in Pennsylvania is an unlawful exercise and presents a significant health risk to Complainant, as well as, an unnecessary threat to his property due to latent design and construction of EMF-EIT, their multigrounded neutral electrical distribution and its toxic "Dirty Electricity."

Respectfully Submitted,


John M. Chenosky, PE

Energy Specialist for 50 years

June 1, 2020

EXHIBIT "O"

**A FEW SMART METER HARM FORMAL COMPLAINT CASES
BEFORE THE PUC**

that we could find and validate as of: May 21, 2020.

All formal complaint cases are listed chronologically by year filed.

*Cases which are currently on appeal to the Commonwealth Court after dismissal by the PUC

2010

Negley v. Met-Ed, C-2010-2205305

Lutherschmidt v. Met-Ed, C-2010-2200353

2011

Corbett v. WPP, C-2011-2219898

Jones v. Met-Ed, C-2011-2224380

2012

Griffin v. Met-Ed, C-2012-2300172

*Povacz v. PECO, 2012-2317176 (resurrected with new case number,
C-2015-2475023)

Thomas v. PECO, C-2012-2336225

Gavin v. PECO, C-2012-2325258

Donnelly v. PECO, F-2012-2330663,

2013

McCarey v. PECO, C-2013-2354862

Secrest, v. WPP, C-2013-2356669

Deuel v. WPP, C-2013-2356667

2013-con't

Brake v. WPP, C-2013-2367308
Evans v, PECO, C-2013-2368477
Morgan v. PECO, C-2013-2356606

2014

Anderson v. PECO, C-2014-2434639
Efaw v. WPP, C-2014-2413744
Loughry v. PPL, C-2014-2445932
Drake v. Penelec, C-2014-2413771
Francis v. PECO, C-2014-2451351
Larson v. PECO, C-2014-2451754
Smith v. PECO, C-2014-2443198
Hagar v. PECO, C-2014-2444961
Campisi v. PECO, C-2014-2434501
McElwain v. Penn Power, C-2014-2451478
Feldman v. PECO, C-2014-2442308

2015

Kreider v. PECO, C-2015-2469655, (after hearing, ALJ Heep ruled to dismiss the complaint. PUC declined final ruling, based on loss of jurisdiction due to the untimely passing of Nurse Kreider)
*Povacz v. PECO, C-2015-2475023
Frompovich v. PECO, C-2015-2474602 (Complainant died from glioblastoma Feb 14, 2020 after PECO smart meter installed)
*Paul v. PECO, C-2015-2475355
*Murphy v. PECO, C-2015-2475726
Von Schoyck v. PECO, C-2015-2478239 (withdrew, went off grid)
Romeo v. PECO, C-2015-2479260
Polite v. PECO, F-2015-2514570 (settled)

2015-con't

Tucker v. PECO, C-2015-2515592 (settled when Tuckers moved socket to other side of their house. Both owners suffer severe health effects after installation of PECO smart meter)

Schoefer v. PECO, C-2015-2497438

Bubb v, PECO, C-2015-2481756

Steffe v. PECO, C-2015-2472173

Fugo v. PECO, C-2015-2519763

Starr v. PECO, C-2015-2516061

Driscoll v. DLC, C-2015-2514759

Benlian v. PECO, 15-2128, U.S. District Court, Eastern District of PA. (we were unable to locate a PUC complaint for Benlian, but federal district court case alleged harm from PECO smart meter)

2016

*Randall - Albrecht v. PECO, C-2016-2537666

Hriadil v. DLC, C-2016-2571726

Sliwinski v. DLC, C-2016-2559985 (withdrawn)

Colbert v. PECO, C-2016-2561993

*Hanley v. Penn Power, C-2016-2557487

*Branagh v. PECO, C-2016-2576738

D. Bervinchak v. PPL, C-2016-2572824 (PPL disconnected service after PUC dismissed complaint)

J. Bervinchak v. PPL, C-2016-2577527 (PPL disconnected service after PUC dismissed complaint)

Ingham v. PECO, C-2016-2579564

Benedetti v. PECO, C-2016-2572597

2017

Chapman v. PPL, C-2017-2617625

Elam v. PPL, C-2017-2630795

2017-con't

Forney v. PPL, C-2017-2614957
Hicks v. PPL, C-2017-2628778 (withdrew because of smart meter illness)
Kline v. PPL, C-2017-2621072
Millan v. PPL, C-2017-2623236
*Myers v. PPL, C-2017-2620710
Peters v. PPL, F-2017-2612900
D. & B. Zimmerman v. PPL, C-2017-2615038
Sheehan v. WPP, C-2017-2630406 (withdrew: went off grid)
Larson v. PECO, C-2017-2615206
*McKnight v. PECO, C-2017-2621057
Biconik v. Penelec, C-2017-2632380
*Schmukler v. PPL, C-2017-2621285
Bachman v. PECO, C-2017-2623504 (withdrew)
Caesar v. PECO, C-2017-2605462
Beckmann v. Met-Ed, C-2017-2613702
Kramer v. Met-Ed, C-2017-2630621
DiStefano v. Met-Ed, C-2017-2631007
Quigley v. PECO, C-2017-2617558
Lattanzi v. PECO, C-2017-2615852
Gavin v. PECO, C-2017-2616249
Eckstein v. PECO, F-2017-2601990
Good v. Met-Ed, C-2017-2631009
Bazan v. WPP, C-2017-2640338
Bente v. Met-Ed, C-2017-2614219
Pink v. PPL, C-2017-2637828
Fiorito v. Penelec, C-2017-2610125
Foursevitch v. Met-Ed, C-2017-2623270
Day v. Met-Ed, C-2017-2624442
Swartz v. Met-Ed, C-2017-2626756
Boyd v. Met-Ed, C-2017-2629256
Hammer v. Met-Ed, C-2017-2629736

2017-con't

Gutcher v. Met-Ed, C-2017-2631915
Keith v. Met-Ed, C-2017-2631984
Roh v. MetEd, C-2017-2632059
Martin v. Met Ed, C-2017-2632064
Robertson v. Met-Ed, C-2017-2632584
Counts v. Met-Ed, C-2017-2632880
Killinger, Jr. v. Met-Ed, C-2017-2634224
Sojda and Lutzkanin v. Met-Ed, C-2017-2638350
Charles E. Jackson v. Penelec, C-2017-2600495
Berginc v. WPP, C-2017-2632636
Steinhart v. Met-Ed, C-2017-2614216
Force v. WPP, C-2017-2634987
Martin v. Met-Ed, C-2017-2631482
Macey v. WPP, C-2017-2628021
Kurzawski v. DLC, C-2017-2614930

2018

Altman v WPP, C-2018-3006434
Anthony v. PPL, C-2018-3000490
Bamberger v. PPL, C-2018-3000358
Heffner v. PPL, C-2018-3000471
*Hoffman-Lorah v. PPL, C-2018-2644957
Mallin v. PPL, C-2018-2644068
Miller v. PPL, C-2018-3000685
*Sunstein v. PPL, C-2018-3000078
Torres v. PPL, C-2018-2641883
Lucey v. Met-Ed, C-2018-3003679
Edwards v. DLC, C-2018-3002741
Green v. DLC, C-2018-3002223 closed
Ott v. Met-Ed, C-2018-3005829

Ulmer v. PPL, C-2018-3003824
Reiger v. Met-Ed, C-2018-3005889
2018-con't

Jennings v. WPP, C-2018-3006031
McDonald v. MetEd, C-2018-3003758 closed
Magill v. WPP, C-2018-3005818
Cole v. Met-Ed, C-2018-3003023
Arndt v. DLC, C-2018-3003482 closed
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Electromagnetic Radiation Due to Cellular, Wi-Fi and Bluetooth Technologies: How Safe Are We?

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ABSTRACT The electromagnetic radiation (EMR) emitted out of wireless communication modules in various IoT devices (especially used for healthcare applications due to their close proximity to the body) have been identified by researchers as biologically hazardous to humans as well as other living beings. Different countries have different regulations to limit the radiation density levels caused by these devices. The radiation absorbed by an individual depends on various factors such as the device they use, the proximity of use, the type of antenna, the relative orientation of the antenna on the device, and many more. Several standards exist which have tried to quantify the radiation levels and come up with safe limits of EMR absorption to prevent human harm. In this work, we determine the radiation concern levels in several scenarios using a handheld radiation meter by correlating the findings with several international standards, which are determined based on thorough scientific evidence. This study also analyzes the EMR from common devices used in day to day life such as smartphones, laptops, Wi-Fi routers, hotspots, wireless earphones, smartwatches, Bluetooth speakers and other wireless accessories using a handheld radio frequency radiation measurement device. The procedure followed in this paper is so detailed that it can also be utilized by the general public as a tutorial to evaluate their own safety with respect to EMR exposure. We present a summary of the most prominent health hazards which have been known to occur due to EMR exposure. We also discuss some individual and collective human-centric protective and preventive measures that can be undertaken to reduce the risk of EMR absorption. This paper analyses radiation safety in pre-5G networks and uses the insight gained to raise valuable concerns regarding EMR safety in the upcoming 5G networks.

INDEX TERMS EMR, wireless, safety, standards, health, protection.

1. INTRODUCTION

The ever-increasing adoption of wireless communication has created a very complex situation of electromagnetic radiation (EMR) exposure. With new technologies such as 5G, the number of devices will increase exponentially and operate on a broader frequency spectrum. With this upcoming technology, the society will be more connected than ever before, and would witness huge economic growth. However, it is very important to identify beforehand, if any, harmful or adverse effects resulting from increased exposure of human beings.

Currently, there are about 15 billion wireless local area network (WLAN) devices ranging from Wi-Fi routers to Internet of Things (IoT) devices [1], 9 billion mobile connections, and about 67% of the world population currently uses mobile

phones [2]. Any unidentified or unaddressed health hazard due to the use of these devices or exposure to their radiation could impact the health of people globally.

Several organizations at both national and international levels have established guidelines for limiting EMR exposure in residential as well as occupational scenarios. Scientific research on EMR exposure-related biological effects began as early as the 1940s [3], but gained significant pace in the early 2000s with the widespread increase of EMR exposure due to cellular communications.

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) has issued regulatory limits on EMR exposure for the general public and workers. ICNIRP's 1998 guidelines have been adopted by most of the countries in the world today [4]. But these limits only take into account the thermal effects of EMR and dismiss evidence on the biological effects of EMR exposure as unclear or

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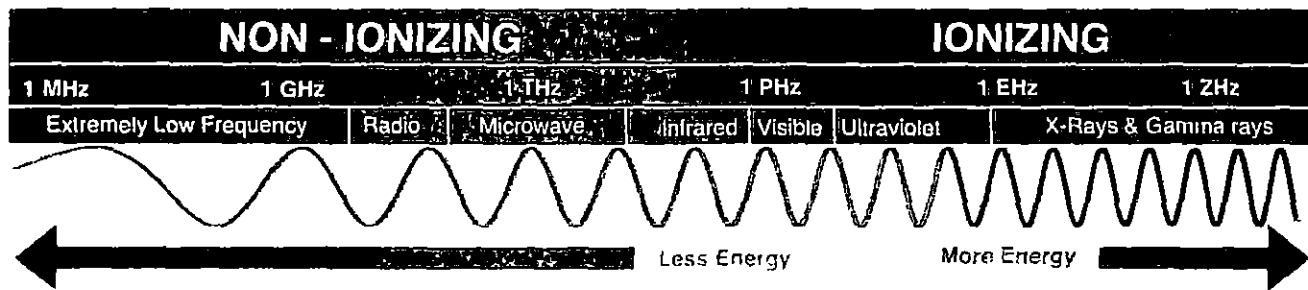


FIGURE 1. Ionizing and Non-ionizing radiation sources and there frequency bands.

unsatisfactory findings. In addition, there are several standards prescribed by medical bodies such as the Building Biology, BioInitiative, and Austrian Medical Association Standards. These limits have been arrived at after extensive scientific research of thermal, non-thermal, chronic exposure, and biological effects carried out by health experts from across the world. On comparing these limits with those prescribed by the ICNIRP, it can be seen that the limits prescribed by the medical bodies are several orders of magnitude lower than those prescribed by the ICNIRP. Therefore, a clear understanding of the differences between these limits, and an assessment of the current exposure levels in accordance with both kinds of exposure limits mentioned above is the need of the hour.

In the literature, many research studies have analyzed health hazards due to EMR exposure [5]. Numerous adverse health conditions such as cancer, infertility, damage to the auditory system, alteration of blood cells and blood flow, mental, cognitive and sleep disorders, and impaired childhood development have been identified in various studies. We have explored the literature in this area and presented a section describing various health risks associated with EMR exposure.

The major contributions of this paper are highlighted below.

- We analyse radiation levels of commonly used cellular, Bluetooth, and Wi-Fi devices to estimate how safe they are to human beings in terms of radiation.
- The procedure followed in this work serves as a tutorial for the general public who can arrive at a good estimate of their radiation exposure with minimal technical knowledge or expertise.
- We review several works which have identified various health hazards resulting from EMR exposure and presents the findings to highlight dangers of excessive EMR exposure.
- Then, we suggest techniques for people as well as societies/organizations to protect themselves from excessive EMR exposure and also presents ways to minimize ambient EMR levels in different environments like schools, hospitals, and homes.

The rest of this paper is organized as follows. In Section II, we discuss the nature of EMR used in wireless communication devices and the need to analyze EMR from various common sources such as mobile phones, laptops and other

cellular, Wi-Fi, Bluetooth and IoT devices. In Section III, we discuss a few important standards and guidelines for EMR exposure which have been determined by scientific organizations/commissions to avoid EMR related health hazards in humans. In Section IV, we present our findings on the radiation levels present in common use cases of popular devices. In section V, we summarize the important health hazards of EMR exposure that have been documented and reported. In section VI, we describe some measures to protect ourselves from EMR and also discuss ways to minimize ambient EMR in public places. In section VII, we recommend some proactive prevention techniques which can be immediately adopted at both individual and societal levels to prevent harmful EMR exposure. In section VIII, we discuss our findings from section IV in light of sections II, III, V and VI. We finally conclude the paper in section IX.

II. PRELIMINARY BACKGROUND AND MOTIVATION

A. IONIZING AND NON IONIZING RADIATION

When referring to interaction of EMR with biological systems, EMR is categorized into two types: ionizing and non-ionizing. About 60% of the human body is water. Based on whether the incoming radiation is high enough to break the chemical bonds of water or not, it is categorized as ionizing radiation (if it can break the bonds) and as non-ionizing radiation (if it is not able to). Several classes of electromagnetic waves are classified as non-ionizing and ionizing radiation as depicted in Fig. 1. The frequencies we are interested in (radio frequencies) fall in the category of non-ionizing radiation. Some of the most common electronic/IoT devices which people use today such as mobile-phones, smartphones, laptops, wireless speakers and headphones, and smartwatches, all communicate using radio frequencies. Broadly, they can be categorized into devices which use cellular, Wi-Fi or Bluetooth technology as shown in Fig. 2. This kind of radiation has been linked with various adverse health effects in human beings. The severity of these effects varies with the power of radiation, distance of the radiation source, the kind of device, the type of antenna used in the device, the modulation technique used in the communication and the duration of exposure.

Electromagnetic radiation in the frequency range 20 KHz - 300 GHz is referred to as radio frequency (RF) radiation. Most of the commonly used communication services such as FM radio, television broadcast, satellite, cellular, Global

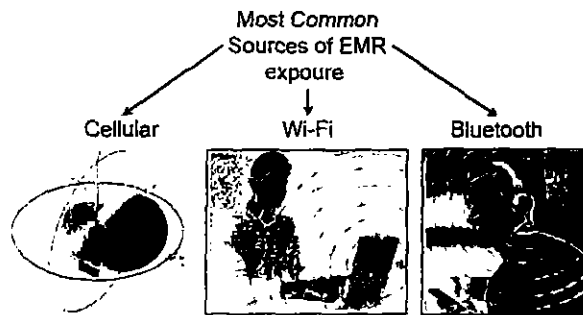


FIGURE 2. Most common sources of EMR exposure.

TABLE 1 Common wireless communication technologies.

Name of technology	Frequency	Deployment year
1G	800 MHz	1970-1980
2G	850/900/1800/	1990
2.5G	1900 MHz	1985
3G	800/850/900/ 1800/1900/ 2100 MHz	2004
3.5G	1.8 GHz/2.6 GHz	2007
3.75G	3.5 GHz/5.8 GHz	2012
4G	1.8 GHz/2.6 GHz	2009
WIMAX	2.3 GHz, 2.5 GHz and 3.5 GHz	2008-2015
5G	600 MHz to 6 GHz and 24-86 GHz	2018
Wi-Fi	2.4/5 GHz	1997
Bluetooth (versions 1-5)	5 GHz	2000

Positioning System (GPS), Wi-Fi and Bluetooth all lie in this frequency range.

B. MOTIVATION

An antenna is a transducer which converts AC. electric currents flowing in metal conductors to radio frequency electromagnetic waves and vice-versa. Antennas are used in all wireless radio frequency communication devices. During transmission, AC. electric current is supplied to the antenna's terminals, which induces the antenna to radiate EMR waves in the radio frequency range. During reception, the antenna intercepts radio waves to generate an AC. electric current at its terminals, which is applied to a receiver before amplification. In the latest smartphones which are in use today, there are several antennas for different communication purposes such as cellular, GPS, Wi-Fi and Bluetooth. Table 1 lists the most commonly used wireless technologies at present and their frequency ranges. Fig. 3(a) shows the usage of multiple antennas in a smartphone. Similarly Fig. 3(b), Fig. 3(c) and Fig. 3(d) show the antennas used in the Jio-Fi 4G Hotspot,

the Wi-Fi antennas present in a laptop, and the Bluetooth antenna used in a wireless earphone respectively.

A cell phone communicates wirelessly with a cellular base station that is typically hundreds of meters away. The antennas on a mobile phone are not directive, i.e., they transmit and receive EMR roughly in all directions. Their radiation pattern is roughly omni-directional. This enables good communication, because the user does not necessarily orient the phone in the direction of the cell tower. These antennas ensure the propagation of the electromagnetic waves to the, enabling communication. The omni-directional nature of these antennas can cause radiation energy to dissipate in all directions. But this means that a mobile phone emits radiation directly into the head of the user. Moreover, when the phone is situated in areas with weak reception such as the far end of its closest cell tower or in the basement of a building, its radiation increases by several magnitudes in order to ensure good connection with the cellular base station.

Laptops communicate with both Wi-Fi and Bluetooth technology, but Wi-Fi is used more extensively to connect to wireless routers located nearby. Just as for mobile-phones, the laptop antennas are designed to ensure good connection regardless of its orientation or position in a Wi-Fi zone. Hence, even laptop Wi-Fi antennas are roughly omnidirectional in nature. Laptops are mostly used either on the lap or on a desk. When used on the lap, severe amounts of radiation directly enter the legs, groin and torso region. Moreover, since the antenna is located very close to the body, the magnitude of radiation is extremely high. When used on desks or tables, the face of the user directly faces the antenna. Most laptops have their antennas located at the top of the display. Laptops are used for several hours at a time in very close proximity and hence raise more concern than mobile phones which may be held next to the ears for just a few minutes during a call.

In the last few years, the popularity of Bluetooth headphones and earphones have increased drastically. Some of these earphones such as the one shown in Fig. 3(c) have the antenna extremely close to the ear. These devices are worn by users almost throughout the day and kept active almost continuously. In addition to the radiation from the earphone itself, the connected smartphone or mobile phone, kept in the pocket also emits Bluetooth radiation continuously.

For a common user, it is very difficult to measure the three-dimensional radiation pattern to estimate his own safety in regards to EMR exposure. Therefore, in this document we analyze the radiation levels from the most common sources to and scenarios of EMR exposure. We then correlate our findings with a few well-defined, scientifically and holistically determined safety limits.

III. STANDARDS AND GUIDELINES FOR ELECTRO-MAGNETIC RADIATION

Ideally, it is expected that a well defined, safe exposure limit would apply to people of all countries. But, there are striking differences that arise due to thermal effects, non-thermal

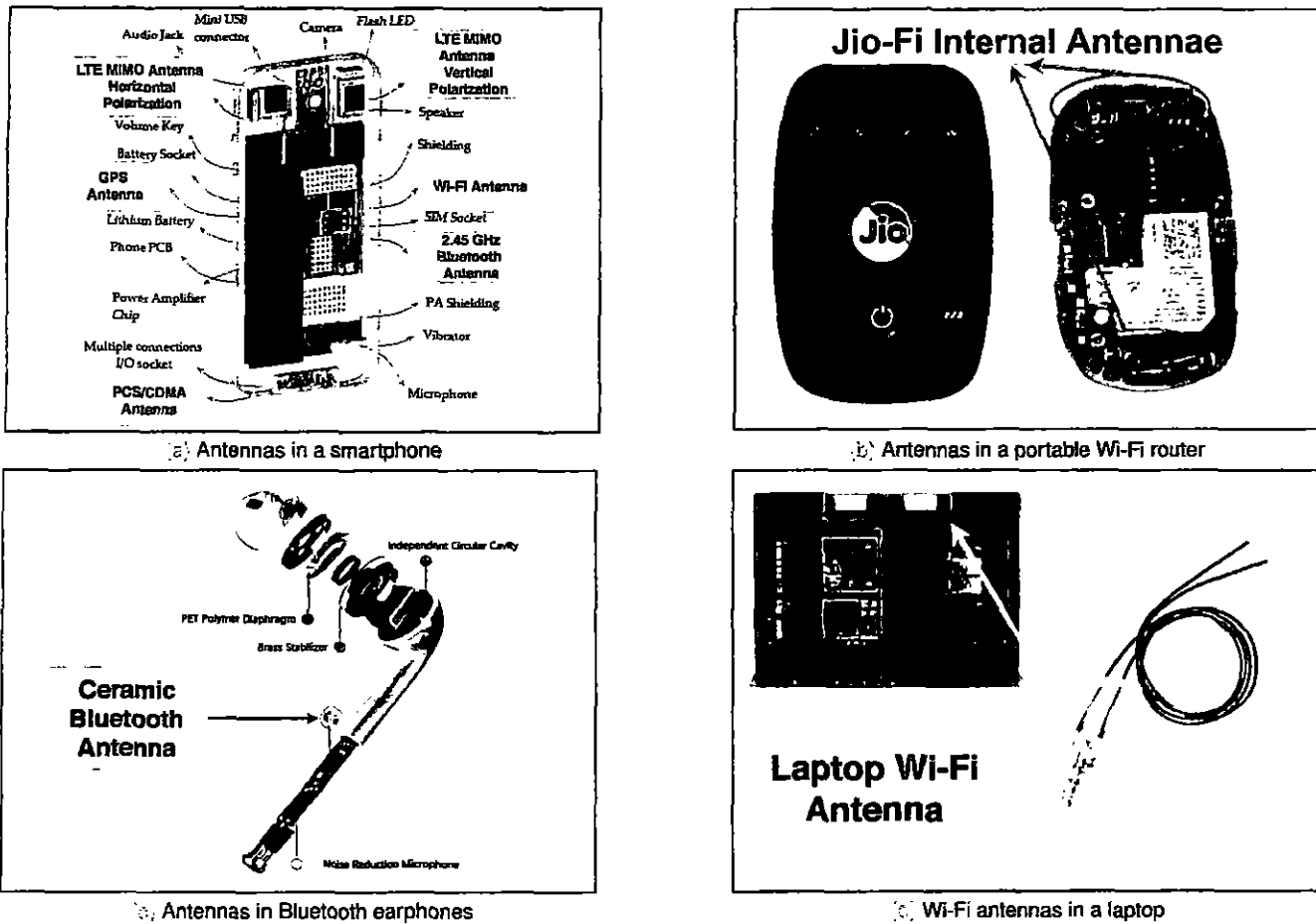


FIGURE 1. Antennas in a smartphone.

health effects, and precautionary measures considered in determining the limits. Different countries across the world adopt different RF EMR exposure limits based on these considerations. For example, the United States adopts limits based only on thermal effects. Russia and China have taken non-thermal effects into account while determining their standards. Switzerland and Italy have taken precautionary measures to account for any adverse health effects which may be discovered in the future, and therefore adopt exposure limits even below non-thermal effects [6]. Damage arising from only tissue heating is considered while determining thermal exposure limits. Such safety limits are prepared based on the assumption that it is sufficient to consider only heating effects while trying to minimize harm to the human body. But in the last few decades, it has been well established that biological and adverse health effects occur at radiation levels which are too low to cause any heating, sometimes several hundred thousand times lower [7].

In this section, we discuss the guidelines on exposure limits prescribed by the ICNIRP, Building Biology, the Austrian Medical Association, and the BioInitiative. The ICNIRP guidelines is the most widely adopted guidelines in the world at present, being adopted by around 50 countries. But it only takes into account the thermal effects of EMR, while the

standards prescribed by Building Biology, Austrian Medical Association, and the BioInitiative take into account thermal, non-thermal, chronic exposure, and biological effects of EMR as well. In this section, we present a comprehensive summary of the above-mentioned guidelines and standards in light of the requirement of this work, i.e., electromagnetic radiation due to cellular, Wi-Fi, and Bluetooth technologies.

A. ICNIRP

The International Commission on Non-Ionizing Radiation Protection (ICNIRP) is an international commission which specializes in non-ionizing radiation protection. The EMR exposure limits of more than 50 countries in the world today [8] are based on ICNIRP's 1998 publication [9]. This document provides different guidelines for occupationally exposed individuals and members of the general public. They have prescribed two types of restrictions, namely Basic Restrictions and Reference levels. Basic Restrictions are difficult to measure, especially for people who are not experts in the field of antennas and do not have access to sophisticated experimental setups. They require sophisticated experimental setups and costly equipment. But, Reference levels can be easily measured using simple handheld RF radiation meters. Here, we only consider the Reference levels for general public

TABLE 2. ICNIRP reference values for general public.

Name	Upper Band Frequency	Exposure Limit (in $\mu W/m^2$)
1G	800 MHz	4,000,000
2G	1900 MHz	9,500,000
3G	2100 MHz	10,000,000
4G	2.6 GHz	10,000,000
Wi-Fi	2.5 GHz	10,000,000
Bluetooth	5 GHz	10,000,000

exposure in the frequency ranges of the wireless technologies considered in this work. The Reference levels at these frequencies for general public exposure are listed below, where f is the frequency of the concerned EMR source. Table 2 lists the reference values (in $\mu W/m^2$) calculated for some wireless technologies.

$$400\text{-}2000 \text{ MHz} : f/200 \mu W/m^2$$

$$2\text{-}300 \text{ GHz} : 10 \mu W/m^2$$

B. BUILDING BIOLOGY STANDARD

The Building Biology Standard [10] takes into account the physical, chemical and biological hazards present places where people work, live and sleep. It considers the influence of various factors such as different electric fields, magnetic fields, waves, radiation, indoor toxins, pollutants, fungi bacteria and allergens. Radio Frequency EMR is also included and addressed as a critical influence in their standard. It aims to enable an individual to identify, minimize and avoid all such factors in their own life without any need sophisticated equipment or scientific expertise.

Their evaluation guidelines are intended to be used in areas where there is risk of repeated long term-exposure such as sleeping and resting areas. Their guidelines are precautionary in nature and define four levels of concern which are listed below.

- 1) **Extreme Concern:** The values categorized under extreme concern require an immediate attention and swift correction. Short term exposures to radiation under this category will cause problems like headache,

nausea, dizziness while long term exposures can lead to more serious diseases as discussed in section VI.

- 2) **Severe Concern:** The radiation values coming under this category are tagged as unacceptable from the point of view of building biology and they must be addressed. These values are unnatural for human beings. Chronic exposures to these radiation levels can sow the seeds of future health diseases.
- 3) **Slight Concern:** This is a precautionary category as radiation levels categorized under slight concern can affect sensitive population like pregnant women, small children and unhealthy people.
- 4) **No Concern:** This category ensures that the radiation levels are safe and will not cause any health hazard. The radiation levels in upper range of this category signify the background radiation level of our modern living environment which is inevitable in the current society.

In the case of RF EMR, the quantity to be measured is power density in the units of $\mu W/m^2$. Power densities (in $\mu W/m^2$) less than 0.1 indicate **no concern**, between 0.1 and 10 indicate **slight concern**, 10 - 1000 indicate **severe concern** and values greater than 1000 indicate **extreme concern**.

$$\text{No concern} : \leq 1 \mu W/m^2$$

$$\text{Slight concern} : 1 - 10 \mu W/m^2$$

$$\text{Severe concern} : 10 - 1000 \mu W/m^2$$

$$\text{Extreme concern} : \geq 1000 \mu W/m^2$$

According to the standard, the values mentioned above refer to peak measurements and are applicable to single RF sources such as GSM, UMTS, WiMAX, TETRA, Radio, Television, DECT cordless phone technology and WLAN except radar signals.

The standard treats pulsed or periodic signals (such as mobile phone technology, DECT, WLAN and digital broadcasting) as more critical sources and recommends that they should be assessed more seriously, especially in the higher concern ranges. Non pulsed and non periodic signals such as F.M, short, medium, long wave and analog broadcasting can be addressed more generously, especially in the lower concern ranges.

The exposure limits prescribed by the medical associations of many other countries are based on the Building Biology Standard. For example, the guidelines prescribed by the Austrian Medical Association (AMA) [11] suggest the same limits mentioned above as 'Within normal limits', 'Slightly above normal', 'Far above normal' and 'Very far above normal'.

C. BIOINITIATIVE STANDARDS

The BioInitiative report [11] is the work of renowned health professionals and many scientists on the potential hazards of exposure to EMR arising from the use of wireless technologies. The first edition of the BioInitiative report was

released in 2007 and then updated in 2012. This report includes an extensive documentation of adverse biological health effects on both general and sensitive populations because of exposure to EMR. Their focus is primarily on chronic exposure to low frequency, extremely low frequency and radiofrequency EMR fields. BioInitiative claims to be an independent body, comprising of medically acclaimed professionals who believe that deployment of wireless technology always happens before the health risks are assessed. This report urges the necessity to reconsider the current situation regarding excessive use of wireless communication technology.

The following is a summary of the latest BioInitiative standards. The standard justifies the cumulative outdoor RF EMR limit to be reduced from $1000 \mu W/m^2$ to just a few $\mu W/m^2$. Based on several studies related to health effects caused by mobile phone and base station radiation, the benchmark for 'lowest observed effect level' was found to be $30 \mu W/m^2$. Considering the higher electrosensitivity of children, and a safeguard for chronic and long term exposures, the above mentioned value of $30 \mu W/m^2$ is reduced by 10 times to set the *precautionary action level for chronic exposure to pulsed RF Radiation* between 3 and $6 \mu W/m^2$. The BioInitiative report also states that this level is not definite, i.e., based on information from newer studies, it may decrease or increase this level.

IV. RESULTS

With the advent of technology, there are more wireless devices today than ever before, such as LTE phones, 3G phones, GSM and CDMA phones, wireless speakers, smart-watches, wireless earphones, portable Wi-Fi routers, wireless mice and keyboards, voice-controlled smart speakers like Alexa, health monitoring devices, etc. In places such as universities, offices and homes, multiple devices are communicating using different technologies at a given time. Note that a majority of devices communicate either using Wi-Fi, Bluetooth or cellular technology. Therefore we have investigated the power flux densities (PFD) of the EMR emitted from specific devices which are used very extensively in our day to day life.

A. METHODOLOGY

For our measurements, we have used the *HF32D RF Analyzer* by *Gigahertz Solution* which is a very easy to use RF radiation meter. This detector covers frequencies from 800MHz to 2.7GHz and therefore can be used to measure 4G/LTE, UMTS/3G, GSM, GPS, Radar, WLAN (Wi-Fi), and Bluetooth radiation densities. The device works on the principle of *Geiger counter effect* by deploying three log periodic antennas in three orthogonal directions.

In order to avoid disturbances from low-frequency EMR sources, the *HF32D RF Analyzer* suppresses sub 800MHz frequencies. The range and signal values of these devices are tuned to assess the EMR in accordance with the *Building Biology Standards* discussed in section III-B. If the power

density exceeds the designated range, an attenuator *DG20* is used which increases the range by a factor of 100.

To execute the process of measurement taking, the EMR source devices were placed along the length of a measuring tape. The RF Analyzer was held from its rear end to avoid any reflections of EMR from the hand of the device holder. To accurately evaluate the radiation of the test device, the following procedure was followed:

- **Step 1:** The area around the test device was probed with RF Analyzer approximately 50 cm from the test device to obtain the direction with the highest level of radiation.
- **Step 2:** Next, the direction of the RF Analyzer was fixed at the point where the highest radiation level was recorded, and then the analyzer was rotated along its longitudinal axis to maximize the reading of the instrument. This ensured that the antenna of the RF Analyzer was aligned with the plane of polarization of the EMR source.
- **Step 3:** Now, the relative orientation of the RF Analyzer and the test device was fixed and then the two devices were moved such that the RF Analyzer was placed on the measuring tape with its direction of antenna parallel to the measuring tape, and its base lying flat on the plane of the measuring tape.
- **Step 4:** For the remaining part, the test device was fixed at the beginning of the measuring tape in the orientation as obtained after step 3. If they were two devices being used in a particular scenario, the same steps were performed to fix the second device at the other end of the measuring tape.
- **Step 5:** Finally, the relative distance between the RF Analyzer and the test device was varied by shifting the RF Analyzer in fixed steps along the measuring tape to record the power flux density values. Let's call this relative orientation as 'x' and the corresponding values of power flux density obtained as P_x . Then by changing the orientation of the antenna to its orthogonal directions 'y' and 'z' we obtained two more sets of values, P_y and P_z respectively at the same positions where P_x was recorded.

Finally, the total magnitude of the power density at each position was calculated using equation 1 where P_x , P_y and P_z represent the power density levels received by the antennas oriented in the 'x', 'y' and 'z' orientation respectively.

$$P_r = \sqrt{P_x^2 + P_y^2 + P_z^2} \quad (1)$$

An attenuator (*DG20*) was used with the RF Analyzer whenever the measured power density was beyond $2000 \mu W/m^2$. The attenuator increases the range of the analyzer by a factor of 100.

For our investigation, we devised few scenarios based on frequently encountered situations in the day to day life of a normal user. The testing was done in an open field free from any sources of electromagnetic radiation as shown in Fig 4.

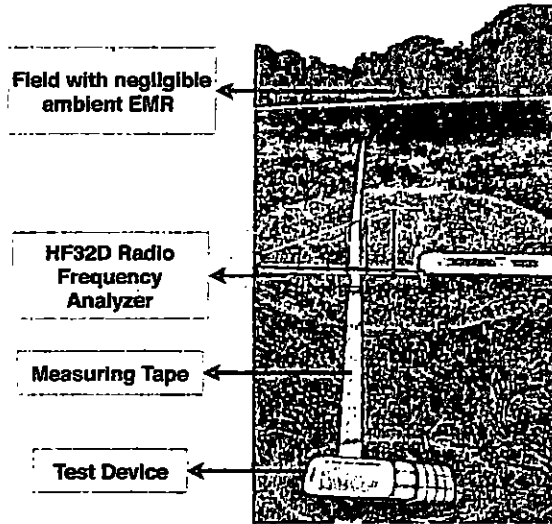
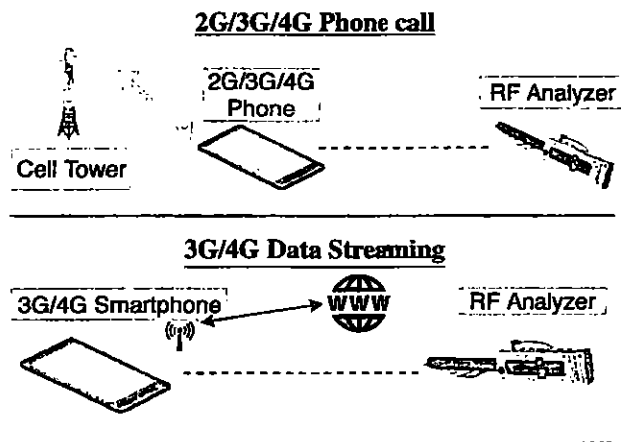


FIGURE 4. The location for testing was an open field with ambient Power Flux Density less than $5 \mu W/m^2$.

TABLE 3. Experimental setup for cellular devices.



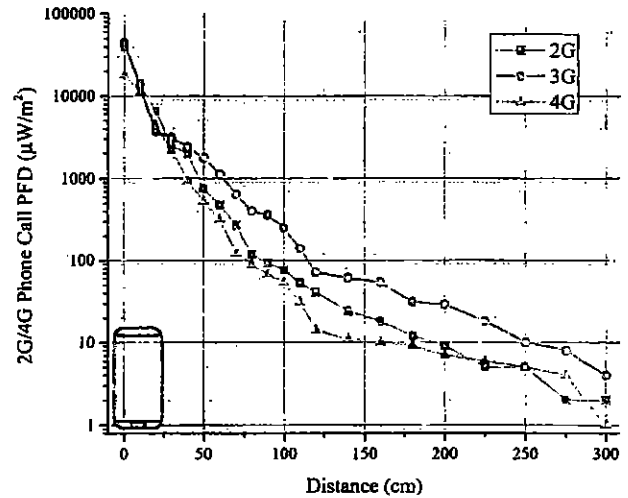
B. EMR DUE TO CELLULAR DEVICES

Table 3 shows schematics of the experimental setups used for analysing cellular devices. Two cases were considered: Phone calls on 2G/3G/4G networks and data streaming on 3G/4G networks.

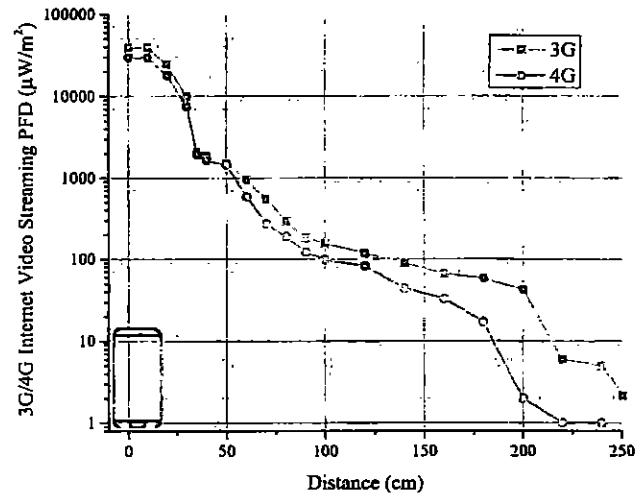
1) 2G/3G/4G PHONE CALL

The power flux density getting emitted from the mobile device which is put on call is recorded according to the above procedure. All other communication channels from the device such as Bluetooth, infrared, Wi-Fi and GPS were turned off. The results are plotted in Fig. 5(a).

In Fig. 5(a), we can see that the same smartphone emits most radiation on the 3G network, second highest on 2G network and least on the 4G network at almost all-distances. While performing a phone call, at a very close range, the PFD measured is 43112, 38907 and 18172 $\mu W/m^2$ on 3G, 2G and 4G networks respectively. The close range radiation in all three cases is above 1,000 $\mu W/m^2$ which is classified as 'extreme concern' according to the Building



(a) EMR results pertaining to a phone call on 2G/3G/4G networks.



(b) EMR results pertaining to data streaming on 3G/4G networks.

FIGURE 5. EMR results pertaining to cellular devices.

Biology Standards and 'very far above normal' according to the AMA standards. The radiation is around 10,000 times higher than the precautionary action level recommended by the BioInitiative Guidelines (3 - 6 $\mu W/m^2$). But these values are certainly within the ICNIRP reference values for general public exposure which are between 9,500,000 $\mu W/m^2$ for 2G networks and 10,000,000 $\mu W/m^2$ for 3G and 4G networks. This implies that phone calls performed on 2G, 3G and 4G devices are safe in terms of thermal effects, i.e., a user will not face any health issues arising from tissue heating, but he/she is certainly at risk of developing health issues from non-thermal, chronic exposure and biological effects.

Near the test location, it was found that the nearest 2G, 3G and 4G BSs were all located on the same cell tower. Therefore, the observation of PFD levels (3G > 4G > 2G) network cannot be attributed to farther 3G/4G BSs. To be able to explain the exact reason for higher EMR emission of the smartphone on 3G networks compared to 4G and 2G networks requires thorough analysis of 2G, 3G and 4G antennas used on the smartphone, including their three-dimensional

radiation patterns, and antenna configurations which are beyond the scope of this work.

At about 50cm away from the phone, the radiation level drops below $1,000 \mu W/m^2$ which comes in the next category of 'severe concern' and 'far above normal'. Therefore the use of wired handsfree earphones/headphones is recommended which generally have a standard length of 1.2m, and by keeping the phone at about 1 m from the user, a good level of safety can be achieved.

2) 3G/4G DATA STREAMING

The mobile device used for this setup was Samsung Galaxy M30. To ensure continuous data transmission from the cell tower to the smartphone, a long HD video was streamed on the phone. The measured power flux density values are plotted in Fig. 5(b).

From Fig. 5(b), it is evident that the PFD of a 4G network is lesser than 3G networks at all distances during data transfers. At very close distances the radiation reaches 38798 and 29682 $\mu W/m^2$ for 3G and 4G networks respectively which is a situation of 'extreme concern' or 'very far above normal' according to Building Biology standards. At a distance of approximately 50 cm, the radiation in both cases drops down to about $1,000 \mu W/m^2$ which is categorized as a situation of 'severe concern' or 'far above normal'. Smartphones are extensively used to stream videos and therefore it is recommended to keep the phone at least 50 cm away on a table to ensure that the user is exposed to a PFD less than $1,000 \mu W/m^2$. Therefore, 4G networks must be preferred to 3G networks for data consumption. The scenario of 3G/4G Data streaming is similar to the situation of 2G/3G/4G since all the measured PFDs are well within the range of ICNIRP reference values for general public exposure, but pose serious health risks when seen in accordance with the Building Biology, AMA and BioInitiative standards.

3) 5G AND BEYOND

The testing of all the devices in this work has been carried out in India, where 5G networks are projected to be deployed by the year 2021. Therefore, measuring PFD levels for devices communicating on 5G networks could not be included in this work. 5G is set to use frequencies between 30 GHz and 100 GHz and would have a bandwidth of 60 GHz, which is much higher than all previous generations. Owing to the increased frequency, the wavelengths in 5G communications will be in the order of few millimeters. Shorter wavelengths travel shorter distances; therefore, 5G networks will be much denser compared to existing networks. This necessitates that more base stations be placed at much closer distances in order to achieve good coverage. In 3G cellular networks, the density of BSs is about 4-5 BSs/km², and the area served by each BS is large and therefore called a *macrocell*. In the case of 4G (LTE) networks, the BS density is about 8-10 BSs/km², the coverage of each BS is lesser and referred to as a *microcell*. However, in the case of 5G networks, the BS density is expected to be increased to about 40-50 BSs/km² due to the high propagation loss of millimeter wave technology.

The area served by each BS in 5G networks is very small and is commonly called a *small cell*. The shorter millimeter waves would also not be able to penetrate building walls effectively. Therefore, the 5G architecture will separate indoor and outdoor networks, which means there will be separate access nodes for indoor users. 5G BSs will also be installed on street light poles meaning that people will be extremely close to the BS antennas, whether they are indoors or outdoors. In addition, 5G will also employ relay nodes that amplify the wireless signals from the BSs before they reach the device. The high data rate requirement of 5G, which is around 1000 times more than 4G, is expected to be solved by the use of massive-MIMO, which incorporates a large number of antennas. Thus, 5G networks contain *Macrocells*, *microcells*, *relays*, street light access points and separate indoor nodes, which operate simultaneously all the time.

Due to the extremely high density of BSs, street light access points, separate indoor BSs, relays and Massive MIMO technology employed in 5G, a person will be exposed to very high levels of PFDs, whether he is indoors or outdoors, or whether or not he is using any wireless devices in close proximity. In other words, it may be suspected that even the ambient PFD which a person is exposed to in most situations throughout the day may fall under the category of 'Severe Concern' according to the Building Biology Standard, 'Far above normal' according to the AMA standards, and may be higher than the precautionary action level recommended by the BioInitiative Guidelines. If 5G networks are deployed without careful analysis of expected exposure levels, almost all people in the area of coverage may be exposed to dangerous levels of PFD, the outcomes of which, in the near future, may turn out to be calamitous.

Currently, South Korea, United Kingdom, Germany, and the United States are at the forefront of 5G network deployment, with several companies already providing 5G services in these countries [12]. It is strongly suggested that a study similar to the one in this paper be conducted in these countries, by correlating the findings with the standards mentioned in section III in order to get a consistent view of radiation exposure in 5G networks as compared to previous generations. This would provide much-needed insight and caution to all countries that are yet to adopt 5G.

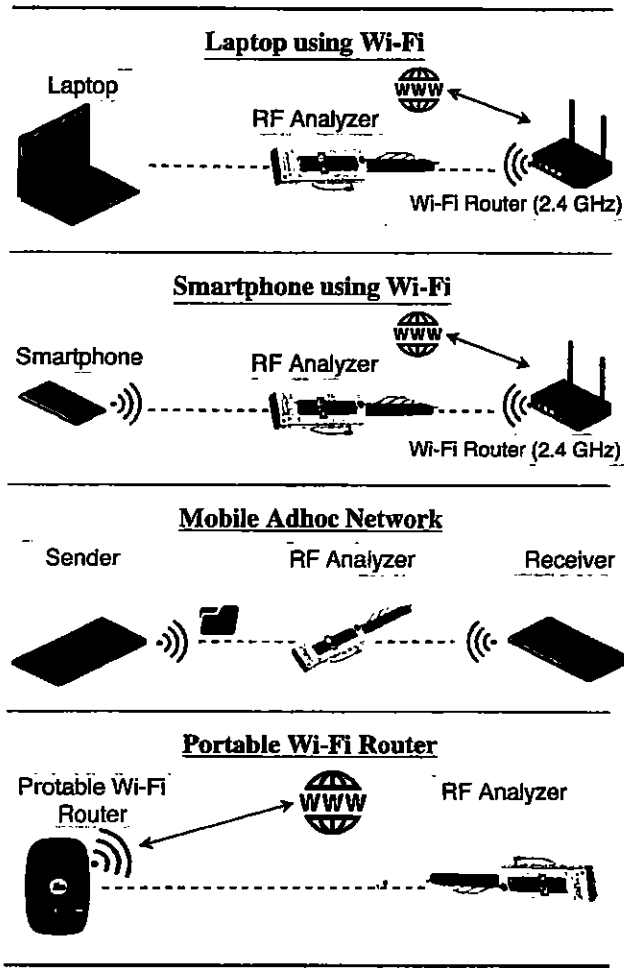
C. EMR DUE TO WI-FI DEVICES

Table 4 shows schematics of the experimental setups used for analysing Wi-Fi use cases. Three cases were considered: Laptops/Smartphones connected to Wi-Fi routers, Wi-Fi Mobile adhoc networks, and portable Wi-Fi hotspots/routers.

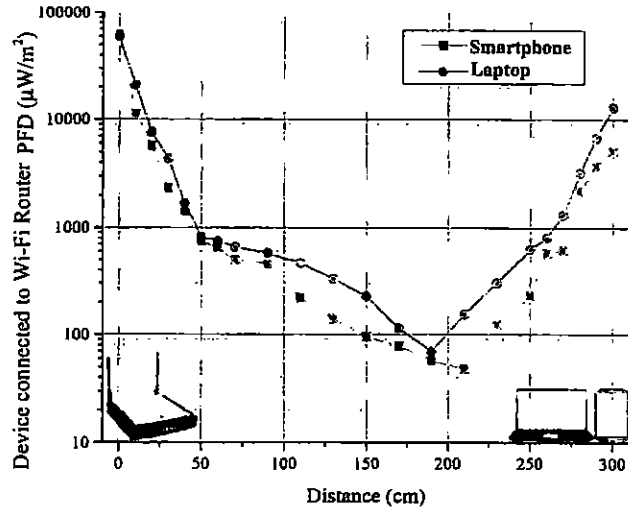
1) LAPTOP AND SMARTPHONE CONNECTED TO WI-FI ROUTER

The laptop used for this setup was Lenovo Z51-70 which was put on airplane mode with only Wi-Fi turned on. The laptop was connected to the Wi-Fi Router operating at 2.4 GHz. The devices were kept facing each other as shown in Table 4. The power flux density readings are plotted in Fig. 6(a).

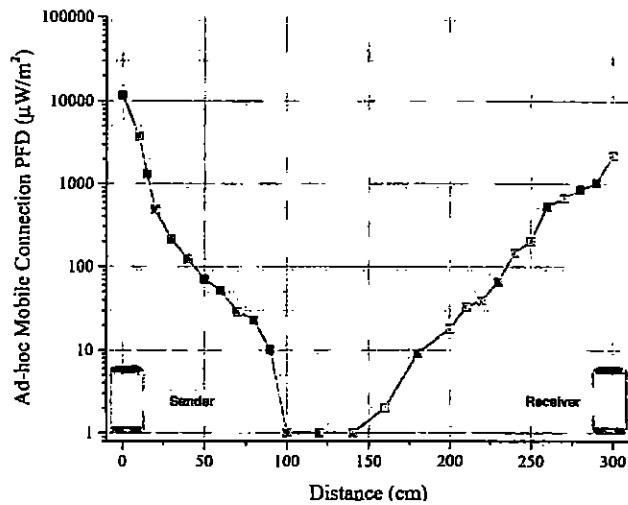
TABLE 4. Experimental setup for Wi-Fi devices.



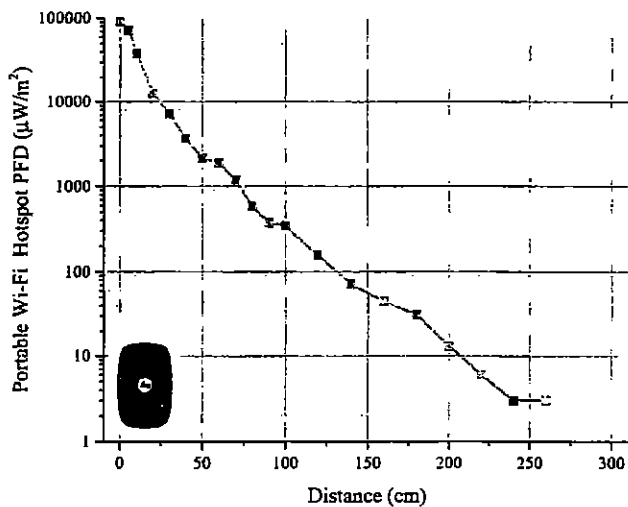
Comparing the scenario of a laptop and a smartphone connected to a Wi-Fi router, it can be inferred from Fig. 6(a), that the effect of the router on the PFD dominates until a distance of about 1.7m from the router. Just next to the router the PFD is about $60,000 \mu W/m^2$ and drops below 100 at 1.7m from it. So, it is advisable to always stay 1.7m away from any Wi-Fi router, whether you are using a laptop or a smartphone. Up to a distance of about 100 cm, the effect of the smartphone or laptop on the PFD dominates. The PFD measured at close proximity of the smartphone is $5123 \mu W/m^2$ and $12886 \mu W/m^2$ in the case of a laptop, which is more than 2 times greater than the latter. The reason for this is attributed to PCIe antennas used in the laptop which are designed for better connectivity in terms of range and data speeds. Therefore, smartphones should always be preferred in use cases where a laptop is not absolutely necessary. The PFD in both cases drops below $1000 \mu W/m^2$ at a distance of approximately 50 cm. Although this PFD still falls in the category of 'severe concern' or 'far above normal' according to the AMA standards and is not to be considered safe, it is still better than the category of 'Extreme concern' or 'very far above normal'. Thus, it is better to keep laptops on a table and operate them from an arm's distance or keep the smartphone



(a) EMR results pertaining to a smartphone/laptop connected to a Wi-Fi router.



(b) EMR results pertaining to smartphone ad-hoc network.



(c) EMR results pertaining to portable Wi-Fi router.

FIGURE 6. EMR results pertaining to Wi-Fi devices.

on a table while watching lengthy videos. Keeping a laptop on the lap or keeping a smartphone connected to the router in the

pocket for long durations would result in dangerous amounts of radiation directly entering the body.

2) MOBILE AD-HOC NETWORK

Two smartphones (Samsung Galaxy M30 and Redmi Note 5) were connected using Wi-Fi Direct technology to form a mobile Ad-hoc Network and a large file was transferred between them. The power flux density readings along their line of sight are plotted in Fig. 6(b).

A hotspot is created between two devices and is meant to handle several connections at a time, which explains why the PFD on the side of a sender ($11819 \mu W/m^2$) is 5 times higher than that of the receiver ($2223 \mu W/m^2$) at a very close range as shown in Fig. 6(b). At a distance of about 1 m from both the devices, the PFD drops below $10 \mu W/m^2$ which is a situation of 'slight concern' or 'slightly above normal'.

3) PORTABLE Wi-Fi ROUTER

Nowadays, portable Wi-Fi routers/hotspots which work on the 4G network are very popular due to their portability, ease of use with almost no setup time. In our measurement, we used the portable Wi-Fi hotspot to measure the power flux density emitted from the device upto 3 m in the direction of maximum radiation. The readings are plotted in Fig. 6(c). Although these devices are very easy to use and portable, they emit a high amount of radiation $92237 \mu W/m^2$ at very close distances. This is because portable Wi-Fi routers are connected to the 4G network and simultaneously function as Wi-Fi routers capable of handling multiple connections at a time. This is the highest reading we recorded among the devices considered in this paper and falls in the category of 'extreme concern' or 'very far above normal'. The PFD drops below $1000 \mu W/m^2$ at about 75 cm and below $10 \mu W/m^2$ at 200 cm. By keeping the device about 200 cm or 2 m away from the user, one can attain a situation of 'slight concern' or 'slightly above normal'. From all the cases mentioned above, the lowest radiation observed while accessing the internet is in the case of a smartphone connected to a Wi-Fi router followed by a laptop connected to the Wi-Fi router. It should also be noted that accessing the internet via Wi-Fi routers involves less radiation in general than accessing the internet via cellular networks.

In terms of health risks, it can be concluded that Wi-Fi technologies also pose serious health risks in terms of chronic exposure, non-thermal, and biological effects of EMR but will not lead to any tissue heating or health risks arising from tissue heating.

D. EMR DUE TO BLUETOOTH DEVICES

1) BLUETOOTH SPEAKERS WITH AUDIO STREAM

Table 5 shows the schematic of the experimental setup used for analysing a Bluetooth speaker. A Bluetooth speaker was connected to a smartphone via Bluetooth wireless technology kept 3m away from the speaker. The power flux density between the two devices was measured and the results are plotted in Fig. 7.

TABLE 5. Experimental setup for bluetooth speaker.

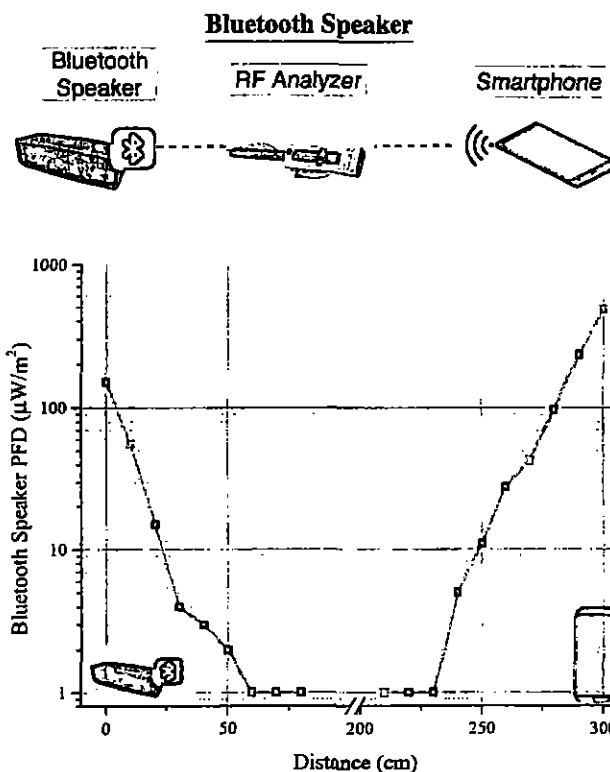


FIGURE 7. EMR results pertaining to Bluetooth speaker.

In Fig. 7, it can be seen that the highest reading just next to the Bluetooth speaker is $487 \mu W/m^2$ and just $152 \mu W/m^2$ near the smartphone. The PFD drops below $10 \mu W/m^2$ at about 50 cm from the smartphone and 25 cm from the speaker which is a scenario of 'slight concern' or 'slightly above normal'. Therefore it is recommended to keep the smartphone at least 50 cm away, and the speaker at least 25 cm away from the user while playing the music.

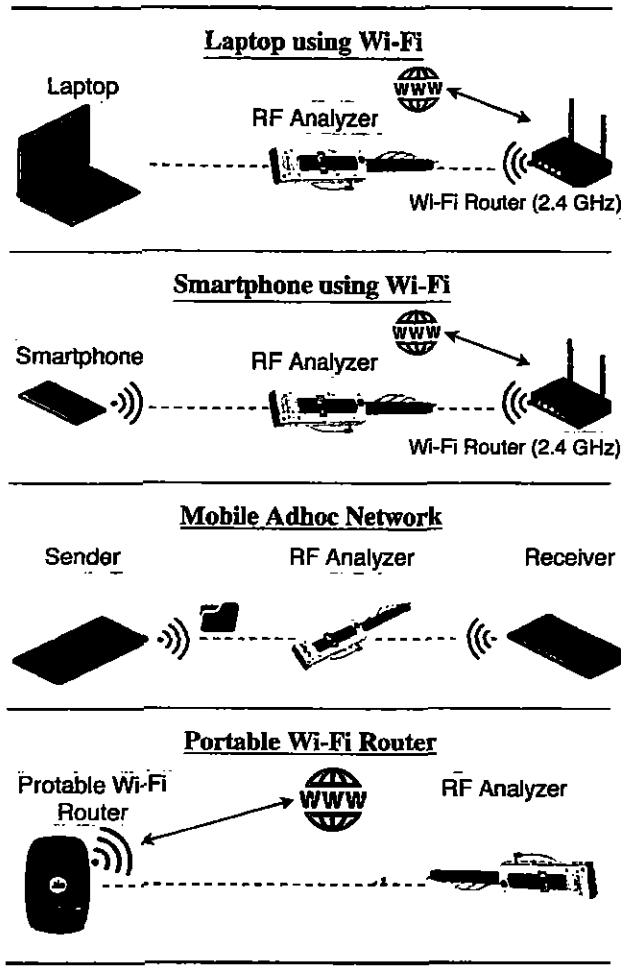
2) BLUETOOTH EARPHONE

Wireless earphones are very quickly replacing wired earphones due to ease of use. A subject was chosen to wear Bluetooth earphones connected wirelessly to a smartphone (Samsung galaxy M30) kept in his trouser's right pocket. A long audio file was played to ensure continuous communication between the devices. We measured power flux density in different areas around the body as shown in Fig. 8.

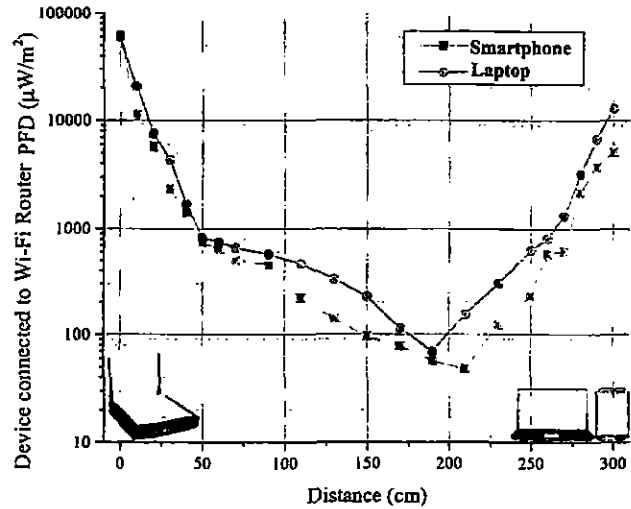
3) SMARTWATCH CONNECTED WITH PHONE

Many people these days are using smartwatches to track their health and routine. Therefore it becomes very important to study whether the radiation coming from the usage of smartwatch is adversely affecting users health or not. The subject was made to wear a smartwatch on his right hand which was connected to smartphone (Samsung Galaxy M30) via Bluetooth, and the smartphone was kept in the subject's right trouser pocket. The power flux density was measured in different areas around the body as shown in Fig. 9.

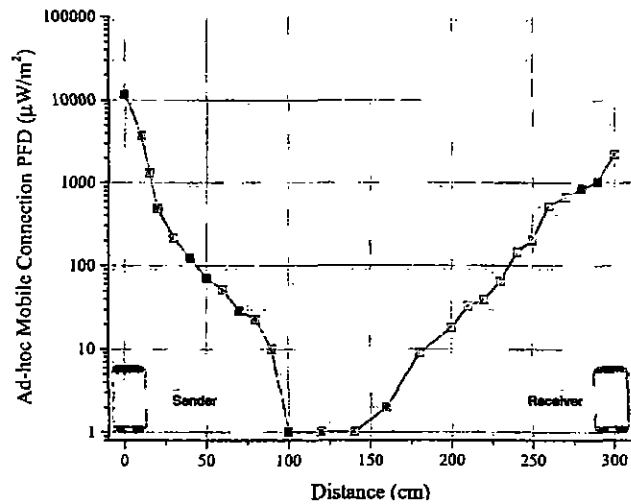
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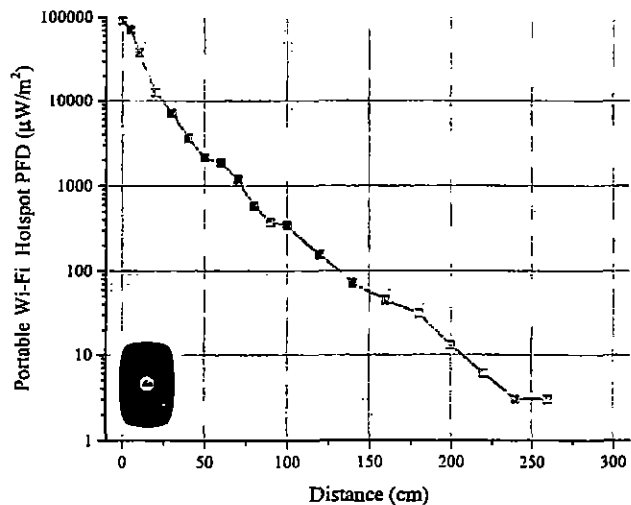
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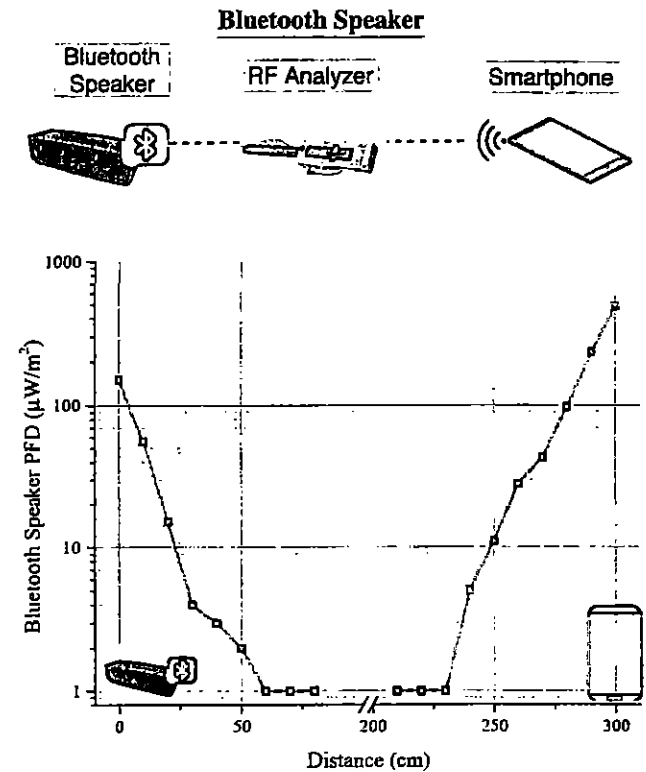


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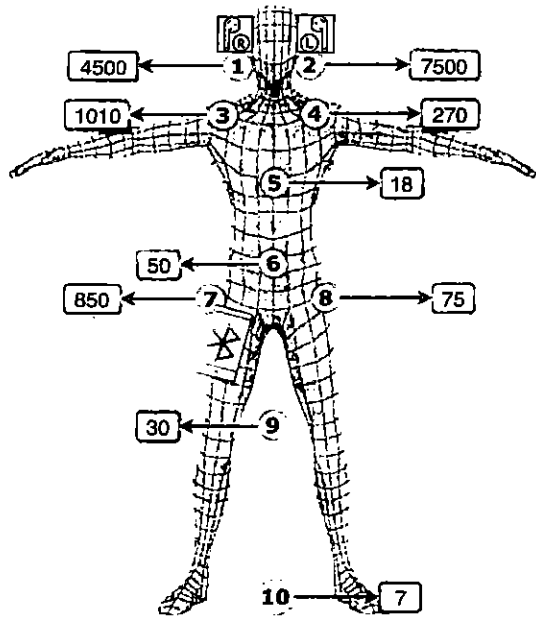


FIGURE 8. EMR readings on different parts of the body while wearing bluetooth earphones (in $\mu W/m^2$).

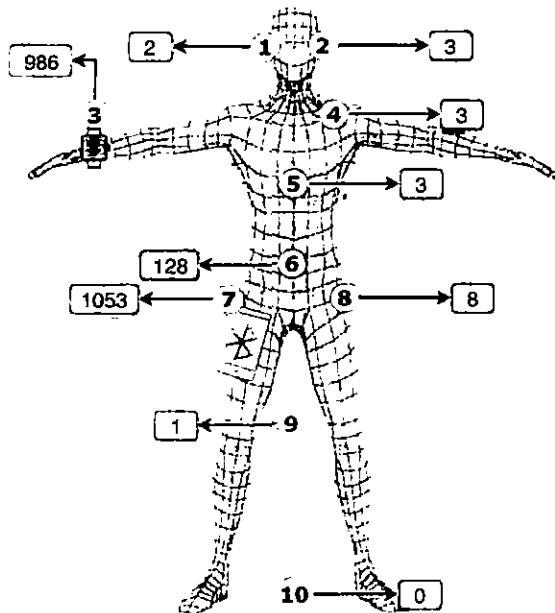


FIGURE 9. EMR readings on different parts of the body while wearing a smartwatch (in $\mu W/m^2$).

Based on the values of PFD shown in Fig. 8, it can be observed that the use of Bluetooth earphones heavily impacts the head region with PFDs in the range of $4000 - 8000 \mu W/m^2$ which comes under the category of 'extreme concern' or 'very far above normal'. In the region of the pocket where smartphone is kept, the PFD is $850 \mu W/m^2$ which is a situation of 'severe concern' or 'far above normal'. In the remaining regions, the PFD is not as significant. Thus, it can be said using Bluetooth earphones puts a person at risk of developing health issues related to non-thermal, chronic

exposure and biological effects in the head, shoulder and pocket regions but is safe from any thermal effects of EMR exposure. In the case of a Bluetooth smartwatch, the radiation in the pocket region as well as near the smartwatch is about $1000 \mu W/m^2$ (see Fig. 9) which can be considered a case of 'Extreme concern' and or 'Very far above normal'. Therefore, it is expected that a person may develop health issues arising from non-thermal, chronic exposure and biological effects only in the pocket and wrist regions. The observed radiation levels indicate that a user is not in any risk of health issues arising from thermal effects.

E. COLLECTIVE EXPOSURE

In most practical situations, there are several wireless devices functioning simultaneously in the vicinity of a person, which makes it becomes important to understand the collective radiation exposure due to all these devices. Here, we consider the case where a person is being exposed to EMR from Wi-Fi, Cellular and Bluetooth devices, namely, a laptop, smartphone, Wi-Fi router, smartwatch, Bluetooth earphones, and a Bluetooth speaker. We have considered these devices to ensure the best balance between worst-case exposure and the most probable set of devices that a person may use. In all practical situations, ambient EMR is always present. Therefore, our readings were taken in a practical test location where there was an ambient EMR of $5 \mu W/m^2$.

For our measurements, we consider a test subject using his laptop kept on a desk, wearing a Bluetooth smartwatch on his left hand, and neck-band type Bluetooth earphones around his neck and also holding a smartphone to his right ear. The laptop is connected to a Wi-Fi router kept 50 cm away on the same table. The Bluetooth earphones are connected to the smartphone and playing music. The smartphone is put on call over the 4G network. A Bluetooth speaker is also kept on the same desk, which is connected to the laptop. Fig. 10 shows the test subject and the placement of various devices near him, and Fig. 11 the measured PFDs at several points near the test subject. At each test point, the orientation of the RF analyzer was adjusted to ensure the maximum reading.

As can be seen in Fig. 11, the measured PFD exceeded $10,000 \mu W/m^2$ in all points except the leg region where a PFD of $500 \mu W/m^2$ was recorded. This implies that the EMR in the leg region comes under the category of 'severe Concern' or 'far above normal,' while all other points showed a PFD of more than $10,000 \mu W/m^2$ and thus come under the category of 'extreme concern' or 'very far above normal.' A PFD of $133,400 \mu W/m^2$ near the Wi-Fi router, was the highest reading recorded in our test scenario, indicating that of all the devices, the Wi-Fi router was the most contributing factor to the cumulative exposure. Therefore, it is highly recommended to avoid keeping a Wi-Fi router on the table. Due to the proximity of the mobile phone, the region near the right ear is exposed to PFD of $36,700 \mu W/m^2$. A PFD of $33,600 \mu W/m^2$ recorded near the left arm can be attributed to the Wi-Fi router, smartwatch and laptop together. The PFD recorded near the chest, torso and groin region: 12300, 5700



FIGURE 10. Placement of different devices in a collective exposure scenario (in $\mu W/m^2$).

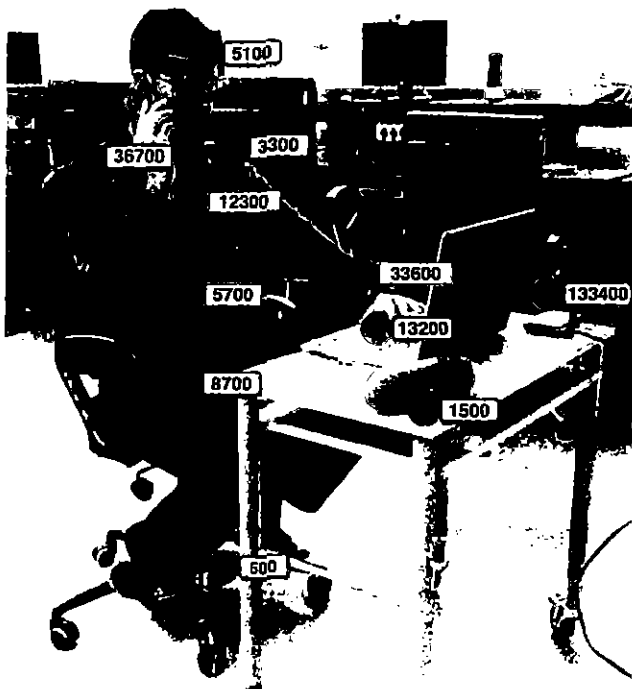


FIGURE 11. EMR readings at different points of in a collective exposure scenario (in $\mu W/m^2$).

and $8700\mu W/m^2$ respectively are all in the category of 'extreme concern' or 'very far above normal.' The exposure

in the groin region in a cumulative exposure scenario is several times higher than the case considered in section IV-D.2, and IV-D.3, where a smartphone was kept in the pocket while being connected via Bluetooth to wireless earphones and smartphones respectively. A PFD of $13,200\mu W/m^2$ was recorded near the keyboard of the laptop. This high reading is attributed to the laptop's Wi-Fi antennas, which are located on top of the screen. Thus, a wired connection to the router should always be preferred to Wi-Fi. Based on the above discussion, it can be concluded that keeping many wireless devices in close proximity is extremely dangerous in terms of non-thermal, chronic exposure and biological health effects but will not lead to any thermal effects since all measurements are within the ICNIRP reference values for general public exposure.

V. HEALTH RISKS AND HAZARDS OF EMR EXPOSURE

From released reports and published articles it is evident that there is a strong correlation between distance from cell towers and variety of EMR related health complaints. People who lived in the vicinity of cell towers or base stations reported health issues such as insomnia, fatigue, headaches and nausea. Some of these people were even diagnosed with serious health diseases such as leukemia, Alzheimer's, Autism, ASD, neuro-psychiatric issues, brain tumors and breast cancer. BioInitiative report has compiled more than 1800 scientific research articles which report serious impact on human and animal bodies like abnormal gene transcriptions, genotoxicity, DNA damage, chromatin condensation, loss of DNA repair capacity, reduction in free-radical scavengers, neurotoxicity, decreased sperm morphology and impaired development of brain and cranial bone. In this section we have summarized the adverse health effects of EMR exposure.

A. CANCER

The International Agency for Research on Cancer (IARC), an independently financed organisation classified Radio-frequency RF EMR under Group 2B carcinogen which means that there is a possibility that RF may be carcinogenic to humans [13]. However, Hardell and Carlberg [14] claim that there is clear evidence of cancer from long term, low level exposure to pulsating and non-ionizing EMR. Their findings warrant IARC to put RF EMR in Group 1: known carcinogen. Another study by The National Toxicology Program (NTP) conducted studies to evaluate potential health hazards and the risk of cancer from RF Radiation. Mice and rats were used as test subjects and were tested on exposure to RF Radiation in the 2G and 3G spectrums (700 - 2700 MHz). This study reported clear evidence of tumor in the hearts, brains and adrenal glands of male rats [15].

Although, not many biophysical mechanisms have been proposed regarding how RF Radiation leads to tumor causing effects, the thermal exposure limits are set solely based on one observed phenomenon which is the amount of power absorbed per mass of tissue or in other words, how much the tissue is getting heated. The thermal limits are specified

such that any RF radiation above these limits starts to heat the body and shows observable effects like disturbance of blood flow and metabolism. Nonetheless, few studies have reported that even at radiation levels below the accepted limit (and legally defined) for human exposure there are signs of tumor-promoting effects [14].

B. PREGNANCY AND INFERTILITY

A strong correlation between male infertility and EMR from mobile phones has been asserted by several researchers [16]. A case study [17] was conducted on male wistar albino rats who were exposed for 14 days, 15 minutes each day to high EMR. The radiation had impacted their testicular architecture and enzyme activity. It was shown that EMR from mobile phones induces an oxidative stress in testicular tissues and ultimately results in decrease of semen quality and lower sperm motility. The severity of oxidative stress depends on usage patterns of the mobile phone owner [17]. In a 2017 study to evaluate the effect of 4G-LTE EMR on sperm formation in male rats, it was concluded that longer durations of exposure results in decreased spermatogenesis [18]. Incidents have been reported where telecom workers who were accidentally exposed to high EMR doses developed skin burns and injury to heat-sensitive tissues such as the lens of the eyes, the testicles and the brain, leading respectively to cataract, male infertility and seizures [19]–[21].

The carcinogenic nature of EMR which results in mutation of sperm cells as well as testicular cancer has also been reported [22]. Thus, the probability that future generations will inherit unhealthy or low-immunity genes is also increased. In a case study which involved exposing pregnant rats to EMR during different stages of pregnancy, uterine congestions, dead and reabsorbed fetuses, hemorrhage, unequal and asymmetrical distribution of fetus implantation sites, malformation, hematoma, short tails and growth restrictions were observed [23].

According to [24], children whose mothers used cell phones during pregnancy had 25% more emotional problems, 35% more hyperactivity, 49% more conduct problems and 34% more peer problems.

C. AUDITORY SYSTEM DAMAGE

When a mobile device is actively connected with the cellular network, all the components of the auditory system including the skin, external, middle and inner ear, cochlear nerve and the temporal lobe surface absorb RF energy. Moreover, it is known that the outer hair cells in the cochlea are highly sensitive to a wide variety of exogenous and endogenous agents which include externally applied electric and magnetic fields [25]. EMR is damaging to unprotected or externally exposed biological tissue such as the outer hair cells in the cochlea. People who have an overactive cortical stress network in the brain are more vulnerable to tinnitus [26].

A common disease or effect is *Tinnitus*, which is in most cases a neurological disorder. A person suffering from tinnitus perceives high-frequency ringing among other sounds

which are externally non-existent. Such people generally report poor quality of sleep, and several difficulties throughout their daily life. In the worst cases, even suicides have been reported. In light of EMR, it is relevant to note that the number of tinnitus cases reported since the last few decades has increased several folds [27]. Studies have shown the evidence that the main cause for such an increase can be attributed to the widespread and long-term usage of cellular phones, particularly in those cases where one ear is much dominantly used over the other [28].

Another phenomenon to be aware of is *RF Hearing* which was confirmed to exist as early as 1960s. Although RF energy is electromagnetic in nature, some of it is converted into acoustic energy both within and outside the cochlea and is perceived as a sound centered at about 5 KHz. The exact frequency may vary depending on the dimensions of the subject's head [29].

Dabholkar *et al.* [30] reviewed several long term case studies and concluded that long term intensive use of mobile phones does lead to hearing losses. Prolonged use (> 1 year) of mobile and cellular technology may decrease the ability of a person to hear high-frequency sounds. The person is also more likely to develop acoustic neuroma, in which non-cancerous tissue develops on a nerve which links the inner ear with the brain. In advanced stages of acoustic neuroma, pressure is exerted on the brain which may result in dangerous neurological effects including vertigo, confusion, unsteadiness, facial numbness and headaches. But casual or infrequent usage does not lead to any immediately recognizable adverse effects or any significant damage to the auditory system.

D. EFFECTS ON CHILDHOOD DEVELOPMENT

Statistics show that in recent years, more children have begun using cellphones or smartphones compared to the elder generation. In addition, it is observed that the average age at which children nowadays begin using smartphones is also significantly lesser than before. Therefore it is expected that this population will absorb significantly more EMR radiation throughout their lifetime. The existing public safety limits for EMR exposure are not acceptably protective of public health, especially the young population including babies, neonate, fetus and embryo. EMR exposure to pregnant women have detrimental consequences on the future health of the child. The time a fetus spends in the mother's womb is a critical time of development because the health problems that are once laid down in the cells or in epigenetic changes in the genome have life-long consequences on the health of that individual [31].

The young population are more vulnerable to EMR exposure because of their smaller body mass and rapid physical development, both of which magnify the impact of EMR on body. The differences in bone density and the amount of fluid in a child's brain compared to an adult's brain allow children to absorb greater quantities of RF energy deeper into their brains than adults [32]. It is known in the field of

medicine that the brain tissue in children shows more electrical conductivity when compared with adults. This allows for more EMR penetration in proportion to the dimensions of the head. Effects on the nervous system which is still in developmental stages are also causes of concern. While anatomical development of the nervous system in children is finished, EMR could still hamper the functional development which generally progresses into adulthood [33].

E. BLOOD RELATED DISORDERS

Exposure to even very low intensity EMR can affect the blood-brain barrier by increasing its permeability. Blood-brain barrier prevents the flow of toxins into sensitive brain tissues and when its permeability increases due to exposure from EMR it no longer provides the protective barrier. Salford *et al.* [34] conducted a study and found that just single two hour exposure to EMR from cell phone results in an increased leakage of blood-brain barrier, and 50 days of such exposure can lead to neuronal damage. The EMR level as low as 0.001 W/kg can affect the blood-brain barrier and this limit is about 1000 times lower than the FCC (1.6 W/kg) and ICNIRP (2 W/kg) limits allowed. Research is required to investigate the damage done by EMR exposure on other barriers like the blood-placenta barrier (that protects the developing fetus), the blood-testes barrier (that protects developing sperm), the blood-ocular barrier (that protects the eyes) and the blood-gut barrier (that protects proper digestion and nutrition).

F. DNA DAMAGE

DNA molecules in our body directly interact with EMR. The double helical structure of DNA causes it to act like a *fractal antenna* [35]. The characteristic of a *fractal antenna* is that it interacts with wide range of frequencies. Therefore, the structure of DNA makes it vulnerable to damage from EMR exposure over the entire range of non-ionizing frequencies i.e. from extremely low frequency range (300 Hz to 3 kHz) to radio frequency range (3 kHz to 300 GHz). This interaction of DNA and EMR generates free radicals, produces stress proteins and causes gene mutations. Human DNA and stem cells are permanently damaged by EMR exposure as they do not have the ability to adapt to chronic exposures of EMR and thus DNA repair is not possible [36].

G. EFFECTS ON MENTAL AND COGNITIVE HEALTH

Many neurodegenerative diseases like Parkinson's disease, Alzheimer's disease and motor neuron disease are found to be caused and triggered by EMR exposure [37]. EMR damages the neurons of the brain, reduces the neuronal reactivity, prolongs their refractory period and increases the neural membrane conductivity. All such diseases mentioned above involve death of specific neurons and therefore are called neurodegenerative diseases.

As mentioned in the introduction of this section, people living in vicinity of cell towers and base stations are prone to develop many neuropsychiatric problems like tremors,

numbness, headache, nausea, memory loss, dizziness, altered reflexes, depression and many other severe brain and cognition related health problems such as paralysis, stroke and psychosis [38], [39].

VI. PROTECTIVE MEASURES AND AMBIENT EMR MINIMIZATION

Based on the discussion in section V, it becomes very clear that the people exposed to EMR must adopt some preventive measures to limit their exposure to harmful RF EMR. In many situations such as those discussed in Section IV, we are exposed to EMR almost daily for prolonged periods of time. While it may not be possible to entirely eliminate such exposure, such as in workplaces, some protective measures could be taken by people to reduce the amount of EMR they absorb and thereby reduce the damage done to their bodies. In this section we present some techniques which are either based on externally attenuating the EMR before it hits the body and some techniques based on monitoring and deploying the EMR sources effectively and efficiently so as to minimize the ambient EMR levels. The techniques based on external attenuation have to be practised on an individual level, while the ambient EMR minimization techniques can be practised on government and society levels only.

A. PROTECTIVE MEASURES

1) EMR ABSORBING CLOTHES

As a result of the research in the past decade suggesting the dangers of EMR on the human body, a variety of EMR absorbing clothing solutions began surfacing the market. Such clothing options incorporate surface-metallized fiber woven fabric in their apparels. Metals like copper, silver or aluminium are chemically deposited on ordinary knitting fabrics to obtain surface-metallized fiber knitted fabric. Such metals are known to attenuate EMR by scattering incident radiation [40]. While many manufacturers do claim a specific EMR absorbing efficacy in decibels over a certain frequency range, it cannot be said for sure whether the attenuation rating claimed by such clothes was obtained through well-designed tests. Such clothes are generally bi-layered, where the first layer reflects some of the incident EMR and the second (inner) layer absorbs the radiation which passed through the first layer [41]. The higher the decibel value, greater is the shielding capability. Most of the materials have a characteristic range of frequencies which they absorb. For example, a product that has an effect of 30 dB at 1 to 5 GHz would mean that the product blocks 99.9% of radiation in the wavelength range of 1 to 5 GHz, which includes most of the RF EMR encountered commonly: cell phones, Wi-Fi routers and bluetooth devices.

Metals are the best solution to reflect EMR. Hence, such clothing generally has metallic strands or metal silk fibers embedded within them which reflect incident EMR away from the wearer's body. Metal silk fibers are also blended with regular fabrics to obtain specially designed electromagnetic shielding fabrics which are used to make different

clothing products such as curtains and blankets. Chemical deposition processes are also used to form a conductive metal plating on top of regular fabric. In any of the above mentioned varieties of EMR protective clothing, the shielding capability increases with the amount of metal used in the product.

Pregnant women, young infants and children, are especially recommended to wear radiation protective clothing due to their higher vulnerability to radiation absorption and damage. Workers who are exposed to abnormally high levels of EMR, such as cell tower repairmen need specially designed EMR reflective and protective clothing designed specifically for their occupation.

2) EMR ABSORBING/REFLECTING PAINTS

Many households are located very close to cell towers which have multiple antennas operating on them. The wall facing in the direction of the tower is most exposed to RF EMR. If it is unprotected, i.e. it does not have any absorptive/reflective coating, the people living in such homes are more prone to develop EMR related health issues as discussed in Section V. One very effective way to prevent high levels of EMR from penetrating the home is to use EMR absorbing/reflecting paints which are specially designed to absorb, reflect or scatter EMR in the RF frequency range as is emitted by the cell towers. It is desired to achieve high levels of attenuation across a wide frequency range.

Materials which have numerically equal values of permittivity and permeability and high loss tangents are more suited to be used in making EMR absorbing paints. The former characteristic guarantees good impedance matching with the air and thus enable incident signals to enter the surface without any reflection. The latter characteristic enables the material to attenuate the EMR rapidly before it enters the home. By using such materials the reflection is also minimized. So, people standing outside the homes are also protected from high power EMR reflected from the walls of the homes. The power radiated from cell towers at certain frequencies may be much higher than others. EMR absorbing paints can address this problem as well because the frequency range at which maximum attenuation is achieved can be set by varying the thickness of the paint applied on the wall. Choosing a thickness to match complex permittivity and permeability can result in a considerable increase in the absorption bandwidth both at normal and oblique incidence of EMR. For example Folgueras *et al.* [42] have prepared two varieties of paints to absorb EMR. Both their formulation have a polyurethane matrix. Carbonyl iron powder (10% w/w) and polyaniline (10% w/w) are the chemicals dispersed in the matrices of the two formulations respectively by mechanical agitation. The attenuation plots of these paints are shown in Fig. 12 (a) and (b) respectively. The paint of Fig 12 (a) achieves attenuation of 8 dB (84.1%) at 10 GHz and the paint of Fig 12 (b) achieves attenuation of 4 dB (60.1%) at 12 GHz. Such paints could be used to shield the EMR coming from 5G towers which are much higher than any RF communication used till date. To ensure the

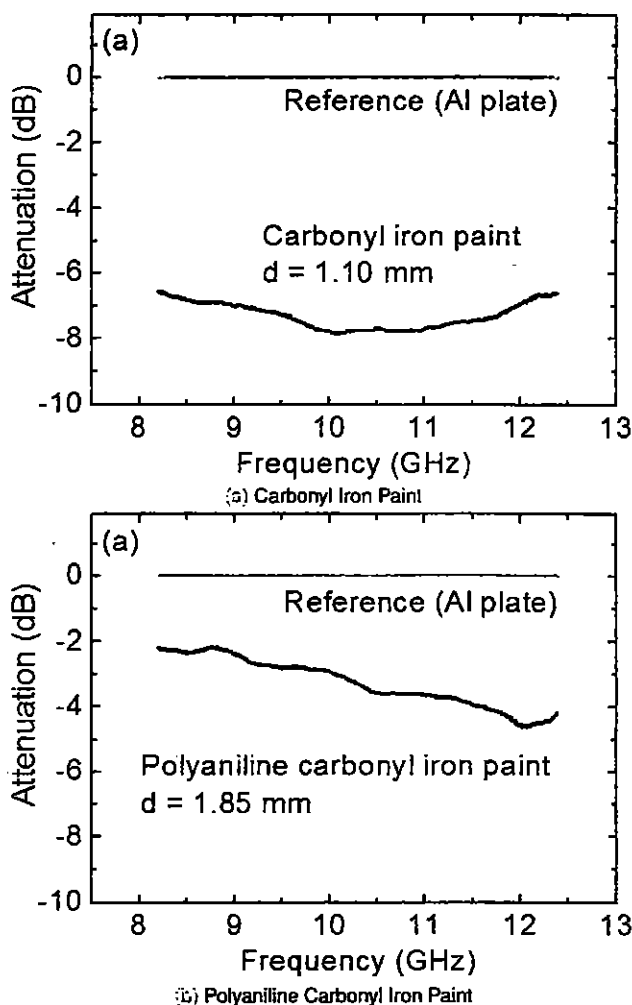


FIGURE 12. Performance of EMR absorbing paints [42].

best protection, on-site testing can be done to accurately determine the frequency at which there is maximum radiation and also the minimum attenuation required to ensure that the residents are protected from any harmful effects. The customers can pass on these specifications to the manufacturer who can then adjust the chemical composition and also suggest the thickness required according to the customers' needs. This would ensure maximum protection at minimum expenditure.

3) AEROGEL

Aerogels are a class of high performance EM radiation absorbing materials designed by fitting several nanosheets of graphene into three-dimensional structures [43]. Their excellent absorption characteristics is due to their high surface area and dielectric loss [44]. The reflection loss (RL) of a material is a characteristic of the input impedance Z_{in} , and output impedance Z_o . RL and Z_{in} are evaluated as follows:

$$RL(\text{dB}) = 20 \log \left| \frac{Z_{in} - Z_0}{Z_{in} + Z_0} \right| \quad (2)$$

$$Z_{in} = Z_0 \sqrt{\frac{\mu_r}{\epsilon_r}} \tanh \left(j \frac{2\pi f d}{c} \sqrt{\epsilon_r \mu_r} \right) \quad (3)$$

TABLE 6. Comparison of different aerogels.

Name of Aerogel	EA Bandwidth	Highest Reflection Loss	Range for EMR absorption
Three Dimensional Polypyrrole [3D-PPy/Paraffin]	6.2 GHz	-25 dB @ 3 mm pellet at 10 GHz	7 GHz ~13 GHz
Graphene Aerogel Composites [CF@G]	4.1 GHz	-30.53 dB @ 2.5 mm pellet at 14.6 GHz	12 GHz ~16 GHz
Graphene Aerogel Composites with polypyrrole coating [CF@G@PPy]	4.1 GHz	-45.12 dB @ 2.5 mm pellet at 14.6 GHz	12 GHz ~16 GHz
Spongelike Polypyrrole aerogel with Reduced Graphene Oxide [S-PPy/RGO]	6.76 GHz	-54.44 dB @ 3 mm pellet at 12.76 GHz	10.20 GHz ~16.96 GHz

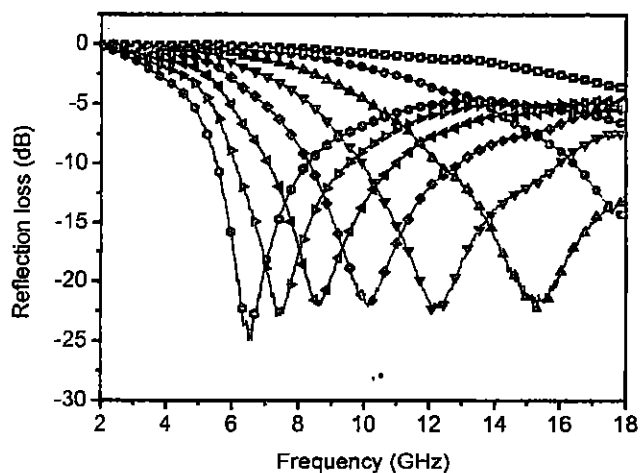


FIGURE 13. RL vs frequency of 3D-PPy aerogel (thickness varying from 1.5 to 5.0mm). [47].

In the above equations, Z_0 is the impedance of the, ϵ_r is the complex permittivity, μ_r is the relative complex permittivity, f is the frequency, d is the material thickness, and c is the speed of light. According to fundamental mechanism of electromagnetic absorption, the most effective absorption would take place when the impedance matching conditions between the material and the free space is achieved [45]. Plots of reflection loss (RL) vs frequency such as in Fig. 13 are prepared for various thicknesses of the aerogel material. Such plots may be used to choose the best material for an application considering into account the most prominent frequency of radiation and the thickness of absorbing material permissible. The frequency at which highest RL occurs varies with the thickness of the aerogel as can be seen in Fig. 13. As the thickness of the aerogel pellet is varied, new phase matching conditions have to be established in order to maintain the RL [46].

Wang *et al.* [43] have prepared ultralight and mechanically strong 3D composite graphene aerogels with the use of waste

cigarette filters. Their composite aerogel showed a minimum RL of -30.53 dB with a bandwidth of 4.1 GHz. On coating with polypyrrole, a conducting material, the new composite showed minimum RL of -45.12 dB. Similarly, Xie *et al.* [47] prepared a self-assembled ultralight 3D polypyrrole (3D-PPy) aerogel, a composite which can reach an effective Electro-Magnetic bandwidth of 6.2 GHz with minimum RL of -25 dB. Wu *et al.* [48] prepared a spongelike self-assembled ultralight aerogel which showed a minimum RL of -54.44 dB with a bandwidth of 6.76 GHz. The above mentioned aerogels and their absorption characteristics are summarized in Table 6.

B. AMBIENT EMR MINIMIZATION

1) OPTIMAL MOBILE NETWORK DEPLOYMENT

With ever-growing consumer demands for telecommunication services and the deployment of 5G technology soon to come, many new base stations will have to be deployed over the already existing 2G/3G and 4G network. Therefore, it becomes very important to achieve optimal deployment of cellular Base stations or wireless access points in order to minimize radiation levels. Compared to most optimization solutions in research [49]–[52], which have considered deployment cost, coverage level and base station capacity in the objective function, Salcedo-Sanz *et al.* [53] have considered an additional criterion, electromagnetic pollution. They have proposed a solution called Grouping Coral Reefs Optimization (GCRO) and demonstrated its effectiveness when applied to a Mobile Network Deployment Problem (MNDP). Deruyck *et al.* [54] have presented a tool which achieves different levels of optimization for power consumption and human exposure in LTE networks. Plets *et al.* [55] have developed a genetic optimization algorithm for Wireless Local Area Networks (WLANs) which optimizes the Exposure Index (EI) [56] taking into account all sources of exposure such as uplink, downlink and the uplink of other users, realistic duty cycles while simultaneously ensuring Quality of Service (QoS) to all users.

Chiaraviglio *et al.* [57] have proposed important guidelines to be followed during deployment of 5G base stations in order to achieve EMR-aware 5G networks. These guidelines include modelling of 5G radio technologies which helps to select the proper configuration of the installed equipment for each considered site, modelling of the generated EMR levels over the territory which allows for a fine-grained antenna site characterization based on the knowledge of the radiation pattern and the emitted power of each antenna in the site, integration of current and future EMF limits, modelling of the set of candidate sites based on idealized distributions and operator-based constraints, modelling of 5G traffic demands and QoS based on spatial and temporal fluctuations that can characterize the radiated power demand and modelling of 5G network topologies.

2) ELECTROMAGNETIC POLLUTION MONITORING USING WIRELESS SENSOR NETWORKS

With new base stations being installed on daily basis, monitoring EMR pollution on a real-time basis becomes essential to detect and locate potentially dangerous EMR levels and notify corresponding authorities to ensure safety of nearby people. In this regard, Noh *et al.* [58] have proposed an EMR pollution monitoring system using a Wireless Sensor Network (WSN) based framework. Their system uses a genetic algorithm on EMR data acquired from WSN nodes do detect and report any EMR limit violations. The WSN nodes are deployed uniformly over an area and are equipped with sensors to detect EMR in the frequencies which are most prevalent.

VII. PROACTIVE PREVENTIVE TECHNIQUES

Certain simple steps can be taken by any individual to avoid EMR exposure. Spreading awareness about dangers and health hazards of EMR in schools, hospitals and other areas having sensitive population such as pregnant women, small children and old people, and giving them simple suggestions based on their surroundings, can help lot of citizens avoid EMR related health issues without spending resources on integrating and deploying EMR attenuating technology. We have listed few such *proactive and common sense* measures to minimize unnecessary and needless EMR exposures keeping in mind various environments and operating conditions:

- 1) In residential places such as homes, at study table and other places where people sit for long periods to use internet, we can have ethernet cable to avoid getting exposed to 2.4 GHz Wi-Fi signal. Many switches to control the power to Wi-Fi router can be installed throughout the house to readily switch off the Wi-Fi radiation when not in use. The windows can be covered with transparent EMR absorbing/reflecting thin film and outer walls can be painted with EMR absorbing paints. Use of landlines for long talks should be preferred over mobile phones and cordless phones. Rooms

of children below the age of 12 should be particularly safeguarded from EMR as they are more prone to EMR related health issues.

- 2) In hospitals and medical institutions, it is especially important to implement guidelines regarding EMR safety as hospitals cater to very sensitive population such as pregnant women, newborn babies, and unhealthy people. Hospitals should not adopt full Wi-Fi coverage technology. Preferably they should give ethernet ports to all the doctors and hospital wards. Government should lay guidelines to not allow deployment of Base Station or Cell tower in near vicinity of hospitals. Units for sensitive population like ICU, CCU, NICU and operation theaters should avoid all sorts of devices which use wireless communication such as wireless incubators and remotely operated instruments. Only those sources of EMR should be used which are meant for medical purposes. Pregnant women should be educated to avoid prolonged use of mobile devices, laptops and other wireless devices.
- 3) In educational institutions, there is a trend to shift to modern technology like wireless projectors in smart classrooms, campus wide Wi-Fi access, use of digital notebooks, etc. As we have mentioned in section V, children are very sensitive to EMR and health issues like autism and impaired mental development are becoming very common among young population. Schools where children spend almost 8 to 10 hours need to minimize the ambient EMR levels inside the classroom by using EMR absorbing paints and window films. School authorities should give special rules and guidelines for high population density zones such as classrooms and school buses, which get really high EMR levels due to everyone using wireless devices simultaneously. If all classrooms cannot be made to comply with EMR safety standards, schools should construct special classrooms to maintain 'no wireless' condition, and allow students to opt for it who believe their academic, social or behavioural progress is being hindered by EMR related health issues.

VIII. DISCUSSIONS

Currently employed public exposure limits do not provide sufficient protection to people both in terms of long-term and short-term exposure. The exposure limits specified by ICNIRP take into account only the thermal effects and not the non-thermal biological effects in determining their limits. The ICNIRP safe exposure limits for general public for the wireless technologies discussed in this paper are between $4,000,000 \mu W/m^2$ to $10,000,000 \mu W/m^2$ which is several orders of magnitude higher than the limits prescribed by the Building Biology, AMA and the BioInitiative standards. While exposure levels within the limits prescribed by ICNIRP only guarantee safety from the thermal effects of EMR

TABLE 7. Recommendations for using cellular, Wi-Fi and Bluetooth devices.

Device Type	Recommendations
Cell Phones/ Smartphones on cellular networks	<ol style="list-style-type: none"> 1. Network: For internet connectivity, prefer Wi-Fi. If not available, prefer to use 4G networks for both calling and browsing/data streaming. 2. Calling: Use wired headphones and keep the phone at least 1m away while calling. 3. Browsing/ Video Streaming: Keep device on a table/platform at least 50 cm away.
Wi-Fi Devices	<ol style="list-style-type: none"> 1. Prefer smartphones over laptops for casual work such as e-mails/ browsing. 2. Keep smartphone/laptop on a table and operate from an arm's distance (50cm). 3. Avoid keeping smartphone in the pocket while it is connected to a Wi-Fi router. 4. Avoid keeping laptop on the lap while it is connected to a Wi-Fi router. 5. Wireless (Adhoc transfer) : Stay at least 1m away from both sender and receiver. 6. 4G Wireless Hotspot: Stay at least 2m away from the device while it is active.
Bluetooth Devices	<ol style="list-style-type: none"> 1. Speakers: Keep speakers at least 25 cm away and connected smartphones at least 50 cm away. 2. Smartwatch: Avoid unless absolutely necessary. 3. Earphones: Avoid unless absolutely necessary.

exposure, there are numerous scientific studies, suggesting that even non-thermal effects pose a significant threat. These non-thermal effects are observed at several orders of magnitude of radiation lower than those of thermal effects. Along with the thermal and non-thermal effects, several other factors such as frequency, duration of exposure, pulse shaping, power level also contribute to health risks of EMR.

It has already been several years since the wireless-technologies have been deployed, meaning that the public has already been exposed to a lot of harmful EMR without their knowledge. It may be anticipated that this section of the population will suffer from many of the health hazards discussed in section V. If corrections are not made now, especially when the number of wireless devices are growing exponentially which leads to an exponential increase in public EMR exposure, the current and future public will be at even greater risks of both known and unknown health hazards. In particular, women, children and fetus are hypersensitive to EMR and special care must be taken to protect these groups from both short and long term exposure.

Smartphones, laptops, Wi-Fi routers, Wi-Fi Hotspots and Bluetooth devices such as speakers, earphones and smartwatches are the most common sources of exposure today. These devices are used extensively in very close proximity. Based on the discussion in section IV, it is clear that usage of mobile phones for calling or data streaming, using laptops and smartphones on Wi-Fi networks, using 4G wireless hotspots are especially dangerous. Exposure to radiation from one or two devices, such as a smartwatch on the wrist and a connected smartphone may result in high radiation levels only near the hand and pocket region, a cumulative and simultaneous exposure to several sources of EMR, such as laptop, smartphone, Wi-Fi router, Bluetooth earphones, smartwatch and speaker leads to dangerous levels of EMR all throughout

the body and must be avoided. While it may take very long for the exposure levels of these devices to be corrected, the users can take some steps to minimize the risk of using these devices. A summary of the recommendations regarding usage of these devices is given in Table 7.

There are wired solutions in each of these use cases which can be adopted to greatly minimize EMR exposure. Using handsfree earphones to make phone-calls, using LAN cables instead of Wi-Fi, wired earphones, switching off Wi-Fi routers when not in use, maintaining a good distance from the wireless devices, are some of the measures to minimize exposure. A two-fold approach can be followed to minimize harm from EMR pollution. Firstly, measures can be taken to protect people from the already existing high levels of EMR. *Second, proactive prevention techniques* can be adopted in environments such as households, schools and hospitals to greatly minimize EMR exposure. These have been explained in detail in Section VI and VII of this paper.

Both individuals and governments must be aware of the fact that the current population has already been exposed to dangerous levels of radiation and the resulting adverse health effects may surface in people at any time. In this regard, proper planning and execution, both on governmental and individual levels is required to properly handle a breakout of EMR related health issues in large numbers of people in all areas of the world. Specifically, it must be noted that the radiation in 5G networks is suspected to increase by several folds. It will not only affect regions near cell towers and 5G devices but all indoor and outdoor environments in the region of coverage. Thus, almost all people in the area of coverage of 5G networks may be exposed to dangerous levels of EMR. Without thorough research and well-designed safety measures in place, wide-spread deployment of 5G networks could prove to be dangerous.

Chiaraviglio *et al.* [57] have proposed important guidelines to be followed during deployment of 5G base stations in order to achieve EMR-aware 5G networks. These guidelines include modelling of 5G radio technologies which helps to select the proper configuration of the installed equipment for each considered site, modelling of the generated EMR levels over the territory which allows for a fine-grained antenna site characterization based on the knowledge of the radiation pattern and the emitted power of each antenna in the site, integration of current and future EMF limits, modelling of the set of candidate sites based on idealized distributions and operator-based constraints, modelling of 5G traffic demands and QoS based on spatial and temporal fluctuations that can characterize the radiated power demand and modelling of 5G network topologies.

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of children below the age of 12 should be particularly safeguarded from EMR as they are more prone to EMR related health issues.

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- 3) In educational institutions, there is a trend to shift to modern technology like wireless projectors in smart classrooms, campus wide Wi-Fi access, use of digital notebooks, etc. As we have mentioned in section V, children are very sensitive to EMR and health issues like autism and impaired mental development are becoming very common among young population. Schools where children spend almost 8 to 10 hours need to minimize the ambient EMR levels inside the classroom by using EMR absorbing paints and window films. School authorities should give special rules and guidelines for high population density zones such as classrooms and school buses, which get really high EMR levels due to everyone using wireless devices simultaneously. If all classrooms cannot be made to comply with EMR safety standards, schools should construct special classrooms to maintain 'no wireless' condition, and allow students to opt for it who believe their academic, social or behavioural progress is being hindered by EMR related health issues.

VIII. DISCUSSIONS

Currently employed public exposure limits do not provide sufficient protection to people both in terms of long-term and short-term exposure. The exposure limits specified by ICNIRP take into account only the thermal effects and not the non-thermal biological effects in determining their limits. The ICNIRP safe exposure limits for general public for the wireless technologies discussed in this paper are between $4,000,000 \mu W/m^2$ to $10,000,000 \mu W/m^2$ which is several orders of magnitude higher than the limits prescribed by the Building Biology, AMA and the BioInitiative standards. While exposure levels within the limits prescribed by ICNIRP only guarantee safety from the thermal effects of EMR

IX. CONCLUSION

People should be made aware that the EMR from using day to day cellular, Wi-Fi and Bluetooth devices are harmful to human health. The levels of radiation observed in most cases such as phone calls, internet browsing on laptops and smartphones, using wireless routers and hotspots, Bluetooth smartwatches and smartphones are unsafe when compared with radiations limits determined by medical bodies. According to the current medical literature, various adverse health effects from exposure to RF EMR have been well documented. For now, wireless technologies must be avoided as much as possible. New and innovative wired solutions which provide the same level of user-friendliness should be encouraged. Intervention of government and medical bodies with the main purpose of protecting human health is of utmost necessity to ensure good economic development without compromising the health of the population. Countries must adopt the guidelines suggested by medical bodies which take into account both thermal and non-thermal effects of EMR. At present, all individuals must take preventive and protective measures to protect themselves from harmful EMR exposure.

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EXHIBIT "Z"

**Eight Repeatedly Documented Findings Each Show that EMF Safety Guidelines Do Not Predict Biological Effects and Are, Therefore Fraudulent:
The Consequences for Both Microwave Frequency Exposures and Also 5G
Second Edition, May 23, 2019**

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Abstract

ICNIRP, US FCC, EU and other EMF safety guidelines are all based on the assumption that average EMF intensities and average SAR can be used to predict biological effects and therefore safety. Eight different types of quantitative or qualitative data are analyzed here to determine whether these safety guidelines predict biological effects. In each case the safety guidelines fail and in most of these, fail massively. Effects occur at approximately 100,000 times below allowable levels and the basic structure of the safety guidelines is shown to be deeply flawed. The safety guidelines ignore demonstrated biological heterogeneity and established biological mechanisms. Even the physics underlying the safety guidelines is shown to be flawed. Pulsed EMFs are in most cases much more biologically active than are non-pulsed EMFs of the same average intensity, but pulsations are ignored in the safety guidelines despite the fact that almost all of our current exposures are highly pulsed. There are exposure windows such that maximum effects are produced in certain intensity windows and also in certain frequency windows but the consequent very complex dose-response curves are ignored by the safety guidelines. Several additional flaws in the safety guidelines are shown through studies of both individual and paired nanosecond pulses. The properties of 5G predict that guidelines will be even more flawed in predicting 5G effects than the already stunning flaws that the safety guidelines have in predicting our other EMF exposures. The consequences of these findings is that "safety guidelines" should always be expressed in quotation marks; they do not predict biological effects and therefore do not predict safety. Because of that we have a multi-trillion dollar set of companies, the telecommunication industry, where all assurances of safety are fraudulent because they are based on these "safety guidelines."

Introduction

The current safety guidelines including the EU safety guideline, the US FCC safety guidelines, the 2013 UK safety guidelines, Canada's safety code 6 and the recent revisions proposed in the 2018 ICNIRP draft, are all very similar to although modified from of the ICNIRP 1998 safety guidelines. The viability of each of these is dependent on the viability of the 1998 ICNIRP safety guidelines [International Commission on non-ionizing radiation protection. 1998 ICNIRP GUIDELINES FOR LIMITING EXPOSURE TO TIME-VARYING ELECTRIC, MAGNETIC AND ELECTROMAGNETIC FIELDS (UP TO 300 GHZ) Health Physics 74 (4):494-522]. There are ongoing processes to make the "safety guidelines" even looser to allow the rollout of 5G and while these are important, they are not considered in this paper.

Table 1: 1998 ICNIRP "Safety Guidelines"

	Frequency range	Whole-body SAR (averaged over 6 minutes)	Localized SAR (head & trunk, averaged over 6 minutes)	Localized SAR (limbs, averaged over 6 minutes)
Occupational	100 KHz-	0.4 (W/kg)	10 (W/kg)	20 (W/kg)

exposure	10 GHz			
General public exposure	100 KHz-10 GHz	0.08 (W/kg)	2 (W/kg)	4 (W/kg)

There are three points that need to be considered:

- Because specific absorption rates (SAR) only predict thermal (heating) effects, there is no reason to assume that these “safety guidelines” predict non-thermal effects.
- There is no reason why effects that occur with very brief exposures should be assumed to be predicted by average exposures over 6 minutes. Some of the more recent guidelines, including the recent ICNIRP draft and the FCC occupational exposure guidelines are averaged over 30 minutes, making this issue of averaging still more problematic.
- When one is concerned about non-thermal responses that are localized, such as local oxidative stress or apoptosis or local DNA effects, there is no reason to use much less stringent guidelines for localized exposures as compared with whole body exposures.

These “safety guidelines” are the basis of the guidelines from the EU, the US FCC, Canada’s safety code 6 and others and while there are some minor differences, these ICNIRP levels can be taken as being similar to each of them. Each of these use exposures averaged over 6 minutes or 30 minutes, where allowable levels are based on SAR and, therefore, only protect us from thermal effects. For example, the EU 1999 general public safety guidelines, COUNCIL RECOMMENDATION of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (100 KHz to 300 GHz) are identical to those listed by ICNIRP in Table 1 (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:31999H0519&from=EN>) and these same general public guidelines were repeated by the EU in 2013 (L 79, 29.6.2013 Official Journal of the European Union). Similarly, the The Australian (ARPANSA) April, 2002 “safety guidelines” for both general public and occupational exposures are identical to the 1998 ICNIRP guidelines (<https://www.arpansa.gov.au/sites/default/files/legacy/pubs/rps/rps3.pdf>).

The 1999 FCC “safety guidelines” are listed in Table 2, below and the similarities to and also some differences with the ICNIRP guidelines, shown in Table 1 can be seen.

Table 2: 1999 US FCC occupational and general public limits for both whole body and localized (partial body) exposures

	Frequency range	Whole body SAR	Localized (partial body) SAR
Occupational exposure	100 KHz – 6 GHz	<0.4 W/kg averaged over 30 minutes	<8 W/kg averaged over 30 minutes
General public exposure	100 KHz – 6 GHz	<0.08 W/kg averaged over 6 minutes	<1.6 W/kg averaged over 6 minutes

The same three concerns expressed above regarding the ICNIRP guidelines are also concerns with respect to the FCC guidelines. The occupational FCC guidelines are weaker than the 1998 ICNIRP guidelines because it uses 30 minute as opposed to 6 minute averaging. The general public whole body guidelines, possibly the most important, are identical for the two guidelines. The localized (partial body) FCC levels are slightly more stringent than are 1998 ICNIRP levels. There are some differences, but the overall structure of both is very similar, with both based on average intensities or SAR and both, therefore, only possibly predicting thermal effects.

We have, then three points that were raised, above, each of which raise serious questions about the "safety-guidelines." But no information is provided to this point in this paper, as to whether these guidelines predict biological effects and therefore safety or not. This paper is mainly focused on the following question: How then do the allowable "safety guideline" Exposure levels compare with levels found in empirical studies to produce actual effects? Eight distinct types of repeatedly found patterns of evidence are considered here, each of which clearly show that the "safety guidelines" do not predict biological effects.

1. I list here bodies of evidence from published reviews, that clearly show that non-thermal exposures to microwave and other frequency EMF, at levels far below "safety guideline" allowable levels, produce each of 9 different types of important health-related effects. Many of the citations listed here are from my 90 page EMF document but substantial numbers of new findings are listed here, as well.

These effects are as follows:

- 1) **Lowered fertility, including tissue remodeling changes in the testis, lowered sperm count and lowered motility and other measures of lowered sperm quality, lowered female fertility including ovarian remodeling, oocyte (follicle) loss, lowered estrogen, progesterone and testosterone levels (that is sex hormone levels), increased spontaneous abortion incidence, lowered libido (25 reviews).**

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2) **Neurological/neuropsychiatric effects including sleep disturbance/insomnia; fatigue/tiredness; headache; depression/depressive symptoms; lack of concentration/attention/cognitive dysfunction; dizziness/vertigo; memory changes; restlessness/tension/anxiety/stress/agitation; irritability (29 reviews).**

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3) Effects on cellular DNA including single strand and double strand breaks in cellular DNA and on oxidized bases in cellular DNA; also evidence for chromosomal mutations produced by double strand DNA breaks. These produce all of the important type of mutations, as described at the DNA level that have roles in cancer causation and in human whole organism mutation (24 reviews).

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4) **Apoptosis/cell death (an important process in production of neurodegenerative diseases that is also important in producing infertility responses)** (15 reviews).

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- 5) **Oxidative stress/free radical damage** (important mechanisms involved in almost all chronic diseases; direct cause of cellular DNA damage) (25 reviews).
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6) Endocrine, that is hormonal effects; Includes changes in non-steroid and also steroid hormones (15 reviews).

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7) Increased intracellular calcium levels, thought to be the cause in all other effects (16 different reviews).

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We have here, a total of 197 bodies of evidence each showing that non-thermal exposures well below ICNIRP, FCC or other "safety guidelines" cause an important health-related effect. These 9 different non-thermal effects are not the only effects apparently being produced. These 197 bodies of evidence *individually* provide strong and in many cases compelling evidence against any claims that can be made on the basis of the ICNIRP, US FCC, EU or other similar "safety guidelines" as do thousands of primary literature citations.

What response do we have from the telecommunications industry or other organizations that have supported the industry positions. The only thing that we have are statements similar to the statement put out by Dr. Jeffrey Shuren, M.D., J.D., Director of the FDA's Center for Devices and Radiological Health on the National Toxicology Program's report on radiofrequency energy exposure as follows: "Based on our ongoing evaluation of this issue, the *totality of the available scientific evidence* (italics added) continues to not support adverse health effects in humans caused by exposures at or under the current radiofrequency energy exposure limits. We believe the existing safety limits for cell phones remain acceptable for protecting the public health." This statement, as were similar statements from other organizations, provided not one iota of evidence in support of the claims. This is obviously unacceptable. What such individuals and organizations need to do when considering the *totality of the evidence* is to consider each of the reviews providing evidence for each of these nine different effects, as well as each of the relevant underlying primary literature citations cited in these reviews. If they wish to rebut these repeated findings, they need to cite each of these reviews, providing an objective description of the relevant evidence described within them and then and only then, provide whatever evidence they may have rebutting the positions taken in these reviews. The complete failure to do this means that the positions taken by Dr. Shuren and similar positions of others on this are fatally flawed. Those flaws go to the heart of the scientific method. Dr. Karl Popper, one of the two most

important philosophers of science of the 20th century, has argued compellingly that falsifying information, information that falsifies a theory or hypothesis, is the most important type of information in science. Here we have 197 bodies of evidence that falsify the position of the industry and organizations that historically have supported the industry with no response whatsoever other than a completely undocumented denial.

2. There were also 13 reviews cited in Chapter 1 of my 90 page document and listed immediately below, each of which showed that pulsed EMFs are, in most cases, much more biologically active than are non-pulsed (also known as continuous wave) EMFs of the same average intensity. Because average intensities, averaged over a 6 minute period or even worse a 30 minute period, are the basis of the ICNIRP, US FCC, EU, SCENIHR and Canadian guidelines this is a fatal flaw in the structure of those safety guidelines. Average intensities are *not* predictive of biological effects and therefore cannot be used as the basis of any useful regulatory scheme. Pulsation is also of great importance, because all wireless communication devices, communicate at least in part, via pulsation and the smarter they are, the more they pulse. Radar units also expose us to pulsations because of the phased arrays that are involved. Consequently, the role of pulsation is stunningly important with regard to the EMFs we are most exposed to.

13 Reviews Each Showing that Pulsed EMFs Are, in Most Cases Much More Biologically Active than Are Non-Pulsed (Continuous Wave) EMFs of the Same Average Intensity:

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11. Pall, M. L. 2015 Scientific evidence contradicts findings and assumptions of Canadian Safety Panel 6: microwaves act through voltage-gated calcium channel activation to induce biological impacts at non-thermal levels, supporting a paradigm shift for microwave/lower frequency electromagnetic field action. *Rev. Environ. Health* 3, 99-116. doi: 10.1515/reveh-2015-0001.

12. Panagopoulos DJ, Johansson O, Carlo GL. 2015 Real versus simulated mobile phone exposures in experimental studies. *BioMed. Res. Int.* 2015, article ID 607053, 8 pages. doi: 10.1155/2015/607053.
13. Batista Napotnik T, Reberšek M, Vernier PT, Mali B, Miklavčič D. 2016 Effects of high voltage nanosecond electric pulses on eukaryotic cells (in vitro): A systematic review. *Bioelectrochemistry.* 2016 Aug;110:1-12. doi: 10.1016/j.bioelechem.2016.02.011.

3. The following comes from (Pall ML. 2018 Wi-Fi is an important threat to human health. *Environ Res.* 2018 Jul;164:405-416; full citations can be obtained from that paper; information inserted into that text is italicized to identify it): How are the non-thermal EMF effects produced? The author found the answer to this question in the already published scientific literature (Pall, 2013). That study showed that in 24 different studies [there are now a total of 26 Pall, (2015b) *and two additional examples were cited in the Wi-Fi paper, for a total of 28*], effects of low-intensity EMFs, including microwave frequency and also extremely low frequency EMFs, static electrical fields and static magnetic fields could be blocked by calcium channel blockers, drugs that are specific for blocking voltage-gated calcium channels (VGCCs). There were 5 different types of calcium channel blockers used in these studies, each thought to be highly specific, each structurally distinct and each binding to a different site on the VGCCs. In papers where multiple effects were studied, all studied effects were blocked or greatly lowered by calcium channel blockers. These studies show that EMFs produce diverse non-thermal effects via VGCC activation Pall 2013; 2014; 2015a & b; 2016a & b) in many human and animal cells. In plant cells, EMFs activate somewhat similar calcium channels and produce somewhat similar effects on oxidative stress, cellular DNA damage and calcium signaling (Pall, 2016a). Furthermore, many different effects shown to be produced in repeated studies by EMF exposures, including the effects discussed above, can be produced by downstream effects of VGCC activation, via increased $[Ca^{2+}]_i$, as discussed in detail below.

Before leaving this issue, it is important to discuss why the VGCCs are so sensitive to activation by these low-intensity EMFs. The VGCCs each have a voltage sensor which is made up of 4 alpha helixes in the plasma membrane, with each such helix having 5 positive charges on it, for a total of 20 positive charges (Pall, 2015b). These voltage sensor helixes are each called S4 helixes because each is the fourth helix in a distinct multi-helix domain. Each of these voltage sensor charges is within the lipid bilayer part of the plasma membrane. The electrical forces on the voltage sensor are very high for three distinct reasons (Pall 2015b; 2015a; 2016a). 1. The 20 charges on the voltage sensor make the forces on voltage sensor 20 times higher than the forces on a single charge. 2. Because these charges are within the lipid bilayer section of the membrane where the dielectric constant is about 1/120th of the dielectric constant of the aqueous parts of the cell, the law of physics called Coulomb's law, predicts that the forces on those charges will be approximately 120 times higher than the forces on charges in the aqueous parts of the cell. 3. Because the plasma membrane has a high electrical resistance whereas the aqueous parts of the cell are highly conductive, the electrical gradient across the plasma membrane is estimated to be concentrated about 3000-fold, as shown by Ohm's law. The combination of these effects means that comparing the forces on the voltage sensor with the forces on singly charged groups in the aqueous parts of the cell, the forces on the voltage sensor are approximately $20 \times 120 \times 3000 = 7.2$ million times higher (Pall, 2015b). The physics predicts, therefore, extraordinarily strong forces activating the VGCCs via the voltage sensor. It follows that the biology tells us that the VGCCs are the main target of the EMFs and the physics tells us why they are the main target. Thus the physics and biology are pointing in the same direction. All of these findings contradict the basic assumptions of the safety guidelines which are based on average exposures averaged

over at least 6 minutes and which set allowable levels based on SAR, a measure of tissue heating and therefore are only relevant to thermal effects.

There are also additional findings pointing to the voltage sensor as the direct target of the EMFs. In addition to the VGCCs, there are also voltage-gated sodium, potassium and chloride channels, with each of these having a voltage sensor similar to those found in the VGCCs. Lu et al (2015) reported that voltage gated sodium channels, in addition to the VGCCs were activated by EMFs. Tabor et al (2014) found that Mauthner cells, specialized neurons with special roles in triggering rapid escape mechanisms in fish, were almost instantaneously activated by electrical pulses, which acted via voltage-gated sodium channel activation to subsequently produce large $[Ca^{2+}]_i$ increases. Zhang et al (2016) reported that in addition to the VGCCs, potassium and chloride channels were each activated by EMFs, although these other voltage-gated ion channels had relatively modest roles compared with the VGCCs in producing biological effects. Each of these three studies, the Lu et al (2015) study, the Tabor et al (2014) study and the Zhang et al (2016) study used specific blockers for these other voltage-gated ion channels to determine their roles. The Tabor et al (2014) study also used genetic probing to determine the role of the voltage-gated sodium channels. Lu et al (2015) also used whole cell patch clamp measurements to measure the rapid influx of both sodium and calcium into the cell via the voltage-gated channels following EMF exposure. *One important finding that is not in the Wi-Fi paper is that Tekieh et al, in a 2016 paper (Effects of electromagnetic field exposure on conduction and concentration of voltage gated calcium channels: A Brownian dynamics study. Brain Res. 2016 Sep 1;1646:560-569), showed that VGCCs in isolated plasma membranes, were activated by three different frequencies of microwave radiation. That shows that EMF activation of the VGCCs is directly produced by EMF impact on the VGCC protein.* Sodium influx, particularly in electrically active cells, act in the normal physiology to depolarize the plasma membrane, leading to VGCC activation such that the voltage-gated sodium channels may act primarily via indirect activation of the VGCCs. In summary then, we have evidence that in animal including human cells, seven distinct classes of voltage-gated ion channels are each activated by EMF exposures: From the Pall, 2013 review, four classes of voltage-gated ion channels were shown from calcium channel blocker studies, to be activated by EMFs, L-type, T-type, N-type and P/Q -type VGCCs. In this paragraph we have evidence that three other channels are also activated, voltage-gated sodium channels, voltage-gated potassium channels and voltage-gated chloride channels. Furthermore the plant studies strongly suggest that the so called TPC channels, which contain a similar voltage sensor, are activated in plants allowing calcium influx into plants to produce similar EMF-induced responses (Pall 2016a). One can put those observations together with the powerful findings from the physics, that the electrical forces on the voltage-sensor are stunningly strong, something like 7.2 million times stronger than the forces on the singly charged groups in the aqueous phases of the cell. Now you have a stunningly powerful argument that the voltage sensor is the predominant direct target of the EMFs. *Because heating is produced predominantly by the EMF forces on singly electrically charged groups in aqueous solution, the 7.2 million figure suggests that safety guidelines allow us to be exposed to EMFs that are approximately 7.2 million times too high. The failure of the "safety guidelines" to discuss the relevant physics of the voltage sensor means that the physics underlying the "safety guidelines" is deeply flawed.*

There is one additional finding that should be discussed here. In a study published by Pilla (2012), it was found that pulsed EMFs produced an "instantaneous" increase in calcium/calmodulin-dependent nitric oxide synthesis in cells in culture. What Pilla (2012) showed was that following EMF exposure, the cells in culture, must have produced a large increase in $[Ca^{2+}]_i$, this in turn produced a large increase in nitric oxide synthesis, the nitric oxide diffused out of the cells and out of the aqueous medium above the cells into the gas phase, where the nitric oxide was detected by a nitric oxide electrode. This entire sequence occurred in

less than 5 seconds. This eliminates almost any conceivable indirect effect, except possibly via plasma membrane depolarization. Therefore that the pulsed EMFs are acting directly on the voltage sensors of the VGCCs and possibly the voltage-gated sodium channels, to produce the $[Ca^{2+}]_i$ increase.

Why is it that the VGCCs, acting via calcium influx, seem to be much more important in producing EMF effects than are the other voltage-gated ion channels? Probably for three reasons: 1. Ca^{2+} ions under resting conditions in cells have about a 10,000-fold concentration gradient driving them into the cell, and over a million-fold electrochemical gradient also driving them into the cell. Because of this, one can have huge calcium influxes upon channel activation. 2. $[Ca^{2+}]_i$ produces many important regulatory effects, such that over activation of those effects can have very large pathophysiological consequences. 3. Sustained elevation of $[Ca^{2+}]_i$ produces major cell damage.

This section of the Wi-Fi paper was followed by an additional section showing how VGCC activation acting via elevated $[Ca^{2+}]_i$, can produce each of the non-thermal effects documented above and elsewhere in the scientific literature.

4 & 5. There is a large literature on nanosecond pulses producing biological effects. If you search under nanosecond pulse in the EMF-Portal database, you will find 213 hits where when each of these are examined individually, over 100 are genuine nanosecond pulse studies that produced non-thermal effects. These do produce effects but when these pulses have their intensities averaged over 6 minutes or 30 minutes, that fall far short of the levels that “safety guidelines” predict are needed to produce effects. This discrepancy with “safety guidelines” was noted in the second earliest nanosecond pulse study listed in the EMF-portal database [Raslear TG, Akyel Y, Bates F, Belt M, Lu ST. 1993. Temporal bisection in rats: the effects of high-peak-power pulsed microwave irradiation. *Bioelectromagnetics* 14:459-478]. If you take a typical pulse that may last for let say 40 nanoseconds and average it over a 6 minute period (about 10^{10} times longer), as the FCC, EU and other “safety guidelines” do, the average intensity (and average SAR) is so low that, of course, the safety guidelines predict there cannot be effects. ***But there are repeatedly found effects in nanosecond pulses ranging from 2 ns to 600 ns.*** So here again the “safety guidelines” are not predictive of biological effects. It makes no sense to average intensities over approximately 10^{10} times longer than it takes to produce an effect. The logic here is the same as if the following were to occur: Let’s assume that you are concerned about someone shooting you with a high power rifle bullet traveling at about 700 meters per second. The bullet takes about 50 microseconds to tear your body apart. If someone from a regulatory authority tells you that you don’t need to worry about that, if you average the force of the rifle bullet over a 21 day period (about 10^{10} times longer than 50 microseconds), the average intensity is so low, you don’t need to worry about it. If someone were to tell you that, you would laugh in their face and state that they are either completely incompetent or completely corrupt. That is exactly the correct response in dealing with the EMF safety guidelines of the regulatory authorities. There are several of these nanosecond pulse studies that have shown that VGCC activation has a key role in producing them [Azarov et al, 2019 Excitation of murine cardiac myocytes by nanosecond pulsed electric field. *J Cardiovasc Electrophys* 30:392-401; Hristov et al, 2018. Expression of voltage-gated calcium channels augments cell susceptibility to membrane disruption by nanosecond pulsed electric fields. *Biochim Biophys Acta Biomembr* 1860:2175-2183; Vernier PT, Sun Y, Chen MT, et al. 2008 Nanosecond electric pulse-induced calcium entry into chromaffin cells. *Bioelectrochemistry* 73: 1-4; Craviso GL, Choe S, Chatterjee P, et al. 2010 Nanosecond electric pulses: a novel stimulus for triggering Ca^{2+} influx into chromaffin cells via voltage-gated Ca^{2+} channels. *Cell Mol Neurobiol* 30: 1259-1265]. Two such studies also implicate the voltage-gated sodium channels as having roles. These findings show, therefore, that the direct target of the

nanosecond pulses is the voltage sensor of these channels and show therefore, that these are not thermal effects. Consequently, it is not surprising that the "safety guidelines" do not predict effects produced from nanosecond pulses, because these "safety guidelines" do not predict non-thermal effects.

When I started to research the issue of effects of nanosecond pulses, this area seemed to be straightforward. Nanosecond pulses produced effects, produced at least in part via VGCC activation, effects that were not predicted by the "safety guidelines." However, when one looks at the nanosecond literature, it is clear that other important types of studies clearly document additional findings that also conflict with "safety guideline" predictions. One of these is that two nanosecond pulses of identical polarities can produce supra-additive effects when the two occur within a few microseconds of each other [Semenov et al. 2018 Electroporation of cells by closely spaced paired nanosecond-range pulses. *Bioelectrochemistry* 121: 135-141]. The second is that when one studies paired nanosecond pulses of opposite polarities, the second pulse can greatly depress the effects produced, sometimes called cancellation, by the first pulse [Pakhomov AG, et al. 2014 Cancellation of cellular responses to nanoelectroporation by reversing the stimulus polarity. *Cell Mol Life Sci* 71:4431-4441; Gianulis EC, et al. 2015 Electroporation of mammalian cells by nanosecond electric field oscillations and its inhibition by electric field reversal. *Sci Rep* 2015 Sep 8;5:13818. Doi: 10.1038/srep13818; Sözer EB, Vernier PT. 2019 Modulation of biological responses to 2 ns electrical stimuli by field reversal. *Biochim Biophys Acta Biomembr.* 2019 Apr 11. pii: S0005-2736(19)30077-X. doi: 10.1016/j.bbmem.2019.03.019]. Here again, the pulses must occur within a few microseconds of each other.

"Safety guidelines" do not allow for either supra-additive or depressive effects of a second pulse and do not take into consideration the polarity of exposures and are, therefore, yet again deeply flawed – they falsely assume that all exposures act additively such that average intensities predict effects. This flaw falsifies another assumption of the safety guidelines. When those guidelines assume that EMFs always act additively, one of the underlying assumptions behind that is that EMFs act as scalar variables. What the polarity effects show, however is that EMFs are vector variables, having direction as well as intensity and that polarity of each vector is also important. The important roles of polarity here, shows the vector nature of EMFs and the importance of that vector nature to these paired nanosecond pulse studies. It was known in the 19th century that EMFs have vector properties, not scalar properties. It can be seen from this, that the "safety guidelines" are inconsistent with the physics, not just the biology. We have then, different types of findings regarding pairs of nanosecond pulses, each of which is completely inconsistent with predictions of "safety guidelines." 5G is designed to be particularly highly pulsed in order to carry extraordinarily high amounts of information, so that 5G will inevitably have trillions of nanosecond pulses. It follows that using "safety guidelines" to predict effects of 5G radiation is even more problematic than using "safety guidelines" to predict effects of other types or radiation.

I do not think it is surprising, that pairs of nanosecond pulses that occur within a few microseconds of each other may produce either supra-additive or depressive effects, depending on the polarity of the second pulse. The primary direct target of these pulses is the voltage sensor of the VGCCs and other voltage-gated ion channels, as discussed above such that the properties of the voltage sensor predict how it may be expected to behave in response to EMF exposures. The voltage-sensor has four alpha helices, each designated an S4 helix and with each S4 helix having 5 positive charges, with the 4 S4 helices together making up the voltage sensor. Most of those positive charges are 3 amino acid residues apart from each other, such that the closest charged residues stick out from the helix pretty much on the same side of the helix. Three of

those positive charges in each S4 are electrostatically attracted to negative residues on other helices thought to be in fixed positions. What is thought to happen in activation is that there a ratcheting of the S4 helices toward the extracellular space, ratcheting such that the negative charges are now bound to a positive charge 3 residues away from the one that was previously bound. The ratcheting also produces some turning of each S4 helix. This needs to occur several times on each of the four S4 helices to open the channel and allow calcium ions to flow. This ratcheting may occur in response to nanosecond pulse exposures, but the actual secondary structural changes that occur in the voltage-gated ion channel may take much longer than does the ratcheting process. Consequently, the effects of a second pulse, depending on its relative polarity compared with the first pulse, can interact over time periods shorter than the time required for the secondary structural change required to open of the channel.

It should be noted that studies of pulses in the microsecond or millisecond range have not been shown to produce either the supra-additive effects of pulses of identical polarity or the lowered effects produced by a second pulse of opposite polarity. This may be because the relative timing of the two pulses is too far apart.

6. There is also a large literature on the existence of exposure intensity windows where certain specific ranges of intensity of a particular EMF, *produce maximum biological effects and where ranges either lower or higher produce much lower effects*. The consequences of these findings is that dose response curves are non-linear and are also non-monotone, that is they do not always increase with increasing exposure nor do they always decrease with decreasing exposure. Therefore, the ICNIRP, US FCC, EU and other similar "safety guidelines" are fatally flawed for still an additional reason. I am listing here a series of studies that have reviewed studies of this type. Some of these are genuine review articles and some are primary literature articles that have reviewed substantial amounts of earlier literature. One of the things that is striking here, is that many of these studies have found exposure windows that occur at levels 3, 4 or 5 or more orders of magnitude below the safety guideline cutoffs. Consequently, one can get not just effects but large effects when an exposure window occurs are levels on the order of 100,000 times below allowable "safety guideline" levels. So again, the "safety guidelines" give us absolutely no assurance of safety.

a. Pall, M. L. 2015 Scientific evidence contradicts findings and assumptions of Canadian Safety Panel 6: microwaves act through voltage-gated calcium channel activation to induce biological impacts at non-thermal levels, supporting a paradigm shift for microwave/lower frequency electromagnetic field action. Rev. Environ. Health 3, 99-116. doi: 10.1515/reveh-2015-0001.

b. Belyaev, I., 2005. Non-thermal biological effects of microwaves. Microwave Rev. 11, 13-29.

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e. Blackman CF, Kinney LS, House DE, Joines WT. 1989 Multiple power density windows and their possible origin. Bioelectromagnetics 10:115-128.

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g. Persson BRR, Eberhardt J, Malmgren L, Persson MB, Brun A, Salford LG. 2005 Effects of microwaves from GSM mobile phones on blood-brain barrier and neurons in rat brain. PIERS Online 1:638-641.

h. Wei Q, Cao ZJ, Bai XT. 2005 [Effect of 900 MHz electromagnetic fields on the expression of the GABA receptor of cerebral cortex cortical neurons in postnatal rats] Wei Sheng Yan Jiu 34: 546-548.

- i. Markov MS. 2004 Myosin light chain modification depending on magnetic fields II. *Electromagn Biol Med* 23:125-140.
- j. Thompson CJ, Yang YS, Anderson V, Wood AW. 2000 A cooperative model for Ca⁺⁺ efflux windowing from cell membranes exposed to electromagnetic radiation. *Bioelectromagnetics* 21:455-464.

7. Another important factor in determining EMF responses is the type of cell being studied. The relevant studies documenting the importance of cell type are studies where different cell types were studied by the a specific research group using identical methodologies and where the different cell types repeatedly responded differently to the same EMF exposures. I reviewed several studies where such findings were obtained in my 2013 study where single strand breaks in cellular DNA were being measured (Pall ML 2013 Electromagnetic fields act via activation of voltage-gated calcium channels to produce beneficial or adverse effects. *J Cell Mol Med* 17:958-965. doi: 10.1111/jcmm.12088). I also reviewed several studies of this type when reviewing various genotoxicity studies in my 2015 study (Pall, M. L. 2015 Scientific evidence contradicts findings and assumptions of Canadian Safety Panel 6: microwaves act through voltage-gated calcium channel activation to induce biological impacts at non-thermal levels, supporting a paradigm shift for microwave/lower frequency electromagnetic field action. *Rev. Environ. Health* 3, 99-116. doi: 10.1515/reveh-2015- 0001). Belyaev IY (2010 Dependence of non-thermal effects of microwaves on physical and biological parameters. *Eur J Oncol Library* 5: 187-217) reviewed earlier a number of studies, on pp.202 & 203, showing that non-thermal EMF effects were cell type specific. It has repeatedly been found in such studies that stem cells are unusually sensitive to EMF exposures, producing effects where most other cell types do not. Some of these studies have been reviewed by Dr. Belyaev and his colleagues (Belyaev IY, Markovà E, Hillert L, Malmgren LO, Persson BR. 2009 Microwaves from UMTS/GSM mobile phones induce long-lasting inhibition of 53BP1/gamma-H2AX DNA repair foci in human lymphocytes. *Bioelectromagnetics* 30:129-141. doi: 10.1002/bem.20445; Markovà E, Malmgren LO, Belyaev IY. 2010 Microwaves from Mobile Phones Inhibit 53BP1 Focus Formation in Human Stem Cells More Strongly Than in Differentiated Cells: Possible Mechanistic Link to Cancer Risk. *Environ Health Perspect* 118:394-399. doi: 10.1289/ehp.0900781). These cell-type specific findings clearly show that that effects are produced via cell type specific biological processes and consequently all claims that are made that one can predict effects just from the physical properties of the EMFs, *as the ICNIRP, EU, FCC, Canadian and other safety guidelines do, are fraudulent.*

8. The last of these are findings have shown that there are very specific EMF frequencies which produce vastly larger EMF effects than do other slightly different frequencies. These have been interpreted as being due to resonance interactions, where the specific frequency produces a resonance response in the target involved and therefore produces vastly larger responses. These findings have been reviewed four times, to my knowledge:

- a. Belyaev, I., 2005. Non-thermal biological effects of microwaves. *Microwave Rev.* 11, 13-29.
- b. Belyaev IY. 2010 Dependence of non-thermal effects of microwaves on physical and biological parameters. *Eur J Oncol Library* 5: 187-217.
- b. Belyaev, I., 2015. Biophysical mechanisms for nonthermal microwave effects. In: Markov M.S. (Ed), *Electromagnetic Fields in Biology and Medicine*, CRC Press, New York, pp 49-67.
- c. Adey, WR. 1980 Frequency and power windowing in tissue interactions with weak electromagnetic fields. *Proc IEEE* 68, 119-125.

I would suggest that in animals and plants, the most likely target of such a resonance interaction would be the ion channel voltage sensors. We have no evidence as to whether this is correct or not. Interestingly the only such evidence occurs in the bacterium *Escherichia coli* (reviewed in

the second review in the previous paragraph) where the target appears to be the DNA of the cell and where the resonance interaction is influenced by the supercoiling of the DNA.

Summary of the Evidence

The flaws in the "safety guidelines" can be viewed as falling into four distinct categories: Allowable levels, averaging intensities over a 6 minute or 30 minute period, defects in the "safety guideline" physics and failure of the safety guidelines to take into account the biology. Let's consider those one at a time.

Allowable levels: The findings that 9 different important biological effects each are produced at levels well below "safety guidelines", show that allowable levels are far too high. The findings that forces placed by EMFs on the voltage sensor that controls the VGCCs and other voltage gated ion channels are approximately 7.2 million times the forces placed on singly electrically charged groups in the aqueous phases of our cells and bodies, suggests that the allowable exposure levels are too high by a factor of approximately 7.2 million. The findings that there are exposure windows producing high level effects that are approximately 5 orders of magnitude below those allowed by the safety guidelines again, suggest a similar estimate to the 7.2 million factor. After all, allowable levels should always be far below levels that can be shown to produce high level effects. These estimates are similar to those proposed in the 2007 Bioinitiative Report. The frequency windows produce effects are many orders of magnitude lower intensities than the While the flaws in setting allowable levels are profound, in terms of the structure of the safety guidelines the assumption that intensities averaged over a 6 minute or 30 minute period can be used to assess safety may well be more profoundly flawed. Let's look at each of 7 relevant findings. 1. There are 13 different reviews each showing that pulsed EMFs produce, in most cases, much greater effects than do non-pulses, also known as continuous wave EMFs of the same average intensity. These findings clearly show that you cannot use average intensities to predict biological effects and therefore safety. But that is, of course, what the "safety guidelines" do. 2. The intensity exposure window studies, showed that there are what have been called intensity windows where a short intensity range of exposures to a particular EMF, produce maximum effects but lower or higher intensities, produce much lower effects. Averaging can only be predictive of biological effects when one has linear dose-response curves. However the window effects studies clearly show that dose-response curves are neither linear nor monotone. They do not always increase with increasing exposure nor do they decrease with decreasing exposure. This clearly shows that exposures averages over 6 minutes or 30 minutes cannot predict biological effects and therefore safety and argues that averaging over any time period cannot be used in genuine safety guidelines. 3. The nanosecond pulse and paired nanosecond pulse studies show several other flaws behind "safety guideline" averaging. Individual nanosecond pulses repeatedly produce effects but when those intensities are averaged over a 6 minute period, "safety guidelines" predict they cannot produce effects. If you take a typical, let's say 40 nanosecond pulse, averaging it's intensity over 6 minutes means you are averaging it over a period approximately 10^{10} times longer that it takes to produce effects, something that makes absolutely no sense. 4-6. Paired nanosecond pulses, where those pulses occur within a few microseconds of each other produce three other failures for averaging. When the second pulse is of the same polarity as the first one, the two together produce supra-additive effects, but these are not predicted by the "safety guidelines." When the second pulse is of the opposite polarity as compared with the first one, the two together produce much lower effects than do the first one alone, such that the second such pulse is said to "cancel" part and often most of the effect of the first pulse. Such cancellation is not, of course predicted from the "safety guidelines" which predict that multiple pulses must act in additive fashion. How, then, should we interpret the failures of the "safety guidelines" to predict either of these two types of paired nanosecond pulse studies? The "safety guidelines" average the intensities of the EMFs as if they were scalars not

vectors. Scalars have intensity but no direction whereas EMFs have been known for approximately 200 years to be vectors. Those vectors also have polarity, with the polarity being produced by the angle of the vibrations of the electrical and magnetic fields, perpendicular to the direction of the vector. When the "safety guidelines" average the EMFs as if they were scalars, not vectors, the "safety guidelines" are making a profound error with regard to the physics of the EMFs and therefore the mathematics of averaging. This is not the only profound error in the physics of the "safety guidelines." Another important error concerns the failure of the "safety guidelines" to assess the properties of the voltage sensor, the primary direct target of the EMFs in producing biological effects, including its profound sensitivity to the electrical forces of the low intensity EMFs. 7. The last of these are the frequency windows, where exposures within a frequency window, produce effects at levels many orders of magnitude lower than are needed to produce effects at nearby frequencies. These have been ascribed to resonance interactions with a specific biological target. It can be argued that which it is clear that "safety guidelines" fail to predict these, that because of the high level of specificity of the frequencies involved, that the biological importance may of these failures may have limited importance. That may be true but it may not be true. It has been suggested that the 2.45 GHz frequency commonly used for Wi-Fi is close to a frequency window, such that it may account for the activity of this frequency range. Furthermore, when one has a square wave pulse, and when does a Fourier analysis of such a pulse, one gets an almost infinite number of frequencies making up the square wave, such that some of them may well fall into a frequency window. And it should be noted that digital technologies produce square waves all the time. Dr. Waldmann-Selsam et al (2009. Warning against adverse health effects from the operation of digital broadcast television stations (DVB-T): letter from 3 German physicians to the U.S. President and Congress, <http://www.stayontruth.com/warning-against-adverse-health-effects-digital/TV.php>) wrote a letter stating that digital broadcasting was in their experience, much more damaging to their patients than was the analog technology that it replaced. There may be a similar issue with regard to pulsations, such that the shorter a pulsation, the more complex the Fourier analysis of it will be, such that it is possible that much of the activity of short pulsations may be caused by frequency window effects. The resonance interactions that are the apparent explanation of frequency window effects provide another failure of the "safety guideline" physics. By failing to consider interactions with specific highly sensitive biological targets, "safety guideline" physics is again deeply flawed. Of these "safety guideline" flaws produced by the use of average intensities over a 6 minute or 30 minute period in these "safety guidelines," the first six of these flaws discussed here should be viewed as fatal flaws because they produce large errors in assessment of very common exposures. The 7th, the frequency window flaw, its uncertain importance in producing failed predictions of the "safety guidelines" means that it is unclear whether it should be considered a fatal flaw or not. In summary, using this same definition of fatal flaws, we have two fatal flaws in the "safety guideline" physics, three fatal flaws in the safety guideline allowable levels, six fatal flaws in using average intensities over a 6 minute or 30 minute period. Each of these 11 fatal flaws and the additional flaws documented from frequency window studies, because each of them is documented through the biology, show that no valid safety guidelines can be produced without paying close attention to the biology, but that is exactly what they current "safety guidelines" do. There is, an additional finding which emphasizes that the biology cannot be ignored. That additional finding is that when particular research groups look at multiple cell types using the same methodology, they often find that different cell types respond very differently to a particular EMF exposure. Consequently the heterogeneity of different cell types cannot be ignored.

The collective failures of the "safety guidelines" documented here, may well be the most massive failure in the history of science to pay attention to the science. They may well be the most massively consequential such collective failure, because of the vast proliferation of technologies based on these safety guidelines in almost every country on earth, consequential because of both

the human impact and ecological impacts of the EMF effects. Each of these eight distinct types of findings show that the *safety guidelines are fraudulent because they do not predict biological effects*. While this document is aimed at the 1998 ICNIRP, US FCC, EU, Canadian and Australian and US FCC safety guidelines, the similar safety guidelines produced by other countries, including 2013 UK guidelines are similarly fraudulent for each of those same eight reasons. *All guarantees of safety given by these organizations or by industry organizations, which are based on these or similar safety guidelines, are similarly fraudulent*. The fraudulence is caused, in part, by the series of false assumption underlying these safety guidelines:

Assumptions that average intensities or average SAR can be used to assess safety are false. Assumptions that one can ignore pulsations including very short spikes and nanosecond pulses are false. Assumptions that you one ignore biological heterogeneity and assess effects simply based on physics are false. Assumptions that dose-response curves are linear or at least monotone are false. Assumptions that there are no mechanisms that can explain the existence of non-thermal effects are false. Assumptions that electrical forces produced by low intensity EMFs are too weak to do anything are false. Assumptions that identifying average SARs in a specific study is of special importance in judging the quality or biological relevance of the study are false. The consequences of all this, is that we have a multi-trillion dollar (or multi-trillion euro) set of industries, the telecommunication industries where all assurances of safety are based entirely on massive fraud.

I wish that there were some simple modification of these or other guidelines that could provide more reliable safety guidelines, but no such modification exists. At this point in time, the only way to determine biological safety is to do biological safety testing. And biological safety testing is very challenging because of the important roles of:

1. Complex dose-response curves, with regard to intensities and frequencies. The exposure windows create particular challenges, because of high level effects produced by levels of exposure as much as 5 orders of magnitude below current safety guidelines.
2. Biological heterogeneity is important as shown by different responses of different cell types.
3. The physics is complex both with regard to the vector nature of EMFs and the stunning sensitivity of the main direct target of EMFs, the voltage sensor, to the electrical forces of weak EMFs.
4. The complex roles of pulsation as shown by studies of nanosecond, microsecond and millisecond pulses.

What About 5G?

5G will entail using millimeter wave EMFs with sufficient band width and extraordinary levels of pulsation to wirelessly communicate many orders of magnitude greater amounts of information per unit time than do current wireless communication systems. This is clearly stated in the paper that I think of as a propaganda document which, then, fails to take into account any of the established findings previously discussed in this document (Wu T, Rapaport TS, Collins CM. 2015 Safe for generations to come. IEEE-Microw Mag. 2015 March ; 16(2): 65-84.) The extraordinary 5G health problems are created, in part, by the extraordinary pulsation levels. We not only have the 13 reviews each of which show that pulsed EMFs are, in most cases much more biologically active than are non-pulsed EMFs of the same average intensity but we also have the nanosecond pulse studies that are particularly relevant to 5G. The nanosecond pulse studies, described above are particularly relevant to 5G because of the extraordinary pulsation levels of 5G antennae communicating with the "internet of things" will inevitably involve astronomical numbers of nanosecond pulses. The nanosecond pulses are relevant because the individual

nanosecond pulses produce effects no predicted by the "safety guidelines." They are also especially relevant because of the supra-additive effects seen when nanosecond pulses of identical polarity occur within a few microseconds of each other and these supra-additive effects are also not predicted by the "safety guidelines."

Additional 5G health problems are also created in two ways, by the millimeter wave frequencies. The electrical parts of millimeter waves are highly absorbed by materials including the materials in our buildings and the materials in our bodies. Such absorption means that the 5G plans have entailed putting out tens of millions of antennae in close proximity to our homes and other buildings, putting out very high power EMFs, such that the electrical parts can penetrate into our homes and other buildings such that electrical devices can communicate with the 5G antennae. The penetration into buildings will entail use of phase arrays which produce an additional type of pulsation to which we are to be exposed. The high absorption argues that these millimeter waves will be particularly active in activating the VGCCs because the mechanism of such absorption involves interacting with electrically charged groups, including the electrically charged groups of the voltage sensor. That is one very large problem, very high level VGCC activation. The second large problem is the high numbers and high power of the so called small cell antennae which means that it will be essentially impossible to avoid the 5G EMFs, especially when we are outside and have no shielding between our bodies and the antennae. I predict, therefore, that 5G will inevitably create not only human but also ecological disasters of unparalleled proportions. Small mammals and birds and insects will be heavily impacted because of their large surface to volume ratios. The same thing will be true of plants where even large trees have their leaves and reproductive organs highly exposed. One of the consequences that I predict is that we will have huge conflagrations because EMFs make plants vastly more flammable. That may make fires much worse than the recent California fires commonplace. I am, therefore, profoundly concerned about both the human effects and the ecological effects.

Very high level surface effects in humans will, of course, also occur and will probably include:

1. High incidences of melanomas, given multiple reports that EMFs cause melanomas in humans, including in parts of the body not commonly exposed to sunlight. Other expected cancers would also include leukemias and lymphomas because the precursor cells circulate in the blood up through blood vessels near the surface of the body.
2. Erythrocytes are impacted by EMFs, forming such aberrant structures as rouleau bodies, spike structures on the surface of the erythrocytes and hemolysis. Hemolysis will produce anemia. Any and all of these may be expected from 5G exposures.
3. Electromagnetic hypersensitivity often involves surface reddening and pain from EMF exposures, so these are likely to be very common consequences of 5G.
4. Autoimmune diseases can also be produced by EMFs, acting via increased T-cell calcium signaling to produce autoimmunity. Again because the T-cells circulate near the surface of the body, large increases in autoimmunity may be predicted as a consequence of 5G radiation.

One of the claims that the industry makes is that millimeter wave frequencies to be used in most 5G radiation will be absorbed in the outer 1 mm of the body and that therefore, 5G will have no effects in underlying tissues. I showed in Chapter 7 of my 90 page document what the industry claims about penetration of microwave effects were false such that microwaves act at least 40 times more deeply in the body than the industry claims is possible. The way the physics can produce such deeply penetrating effects was also discussed. I predicted therefore that millimeter waves will act deeply as well. Now we have evidence from two CIA translated documents that millimeter waves act at least 20 times more deeply in the body than the industry claims is

Babenko AP, Bigdai EV. 1989 Reactions of biological systems of various complexity to the action of low-level EHF radiation. In Devyakov ND, (ed.) Millimeter Waves in Medicine and Biology. Moscow: Radioelectronica pp. 141-167. (in Russian) found that millimeter waves could produce tachycardia and arrhythmia in the hearts of frogs, even when the hearts were detached from neuronal control. Potekhina IL, Akoyev GN, Yenin LD, Oleyner (1992 Effects of low-intensity electromagnetic radiation in the millimeter range on the cardiovascular system of the white rat. Fiziol Zh 78:35-41 (in Russian)) found that 20 minute exposures to non-thermal non-pulsed millimeter wave EMFs of certain frequencies caused pronounced arrhythmia in the rat. 3 hour exposures caused about 25% of the animals to undergo apparent sudden cardiac death. You will note that earlier in this paper, the possible causation of sudden cardiac death in humans from EMF exposures was discussed. These two studies of millimeter wave cardiac effects also showed, as did other studies discussed above, that the millimeter waves can act vastly more deeply in the body than the industry claims is possible.

These animal studies on non-pulsed millimeter wave effects, discussed in the previous paragraph, make very plausible some animal effects that were reported to occur in The Netherlands during a recent introduction of 5G (Massive starling death by 5G? #FactCheck. <http://wearechange.nl/?p=729>). Here starling birds died suddenly over a several day period of possible sudden cardiac death during the approximate time period of 5G introduction. This is still a matter of controversy and I am not making any conclusions here. But what is clear is that the finding that non-pulsed millimeter wave frequency EMF exposures can cause cardiac effects in animals including apparent sudden cardiac death makes it much more plausible that similar observations in birds may have been caused by 5G radiation during 5G testing.

I am simply going to repeat a statement I made earlier. The "safety guidelines" have been known to be bogus for over 40 years, based on findings of non-thermal effects at levels of exposure well below those allowed under our "safety guidelines." What is clear from this document, is that every single aspect of the safety guidelines is fatally flawed for multiple reasons. "Safety guidelines" using averaged intensities and SAR (or average power densities, as some recent proposals suggest) do not predict biological effects and therefore do not predict safety for over 20 distinct reasons. There are multiple fatal flaws that destroy the "safety guideline" allowable levels, the use of average intensities over 6 minutes or 30 minutes and the "safety guideline" physics, flaws that are produced by the complete failure to pay any attention to any of the biological data that can be used to test the predictions of the safety guidelines. Putting out tens of millions of 5G antennae, in close proximity to almost every home or other building, making it impossible to avoid massive exposures, based on fraudulent "safety guidelines" without doing one single biological test of 5G radiation with all of the pulsations it will entail, is at a minimum, a candidate for being the stupidest thing that has ever been done.

EXHIBIT "X"

INTERNATIONAL APPEAL

Stop 5G on Earth and in Space



To the UN, WHO, EU, Council of Europe and governments of all nations,

We the undersigned scientists, doctors, environmental organizations and citizens from () countries, urgently call for a halt to the deployment of the 5G (fifth generation) wireless network, including 5G from space satellites. 5G will massively increase exposure to radio frequency (RF) radiation on top of the 2G, 3G and 4G networks for telecommunications already in place. RF radiation has been proven harmful for humans and the environment. The deployment of 5G constitutes an experiment on humanity and the environment that is defined as a crime under international law.

Executive summary

Telecommunications companies worldwide, with the support of governments, are poised within the next two years to roll out the fifth-generation wireless network (5G). This is set to deliver what is acknowledged to be unprecedented societal change on a global scale. We will have “smart” homes, “smart” businesses, “smart” highways, “smart” cities and self-driving cars. Virtually everything we own and buy, from refrigerators and washing machines to milk cartons, hairbrushes and infants’ diapers, will contain antennas and microchips and will be connected wirelessly to the Internet. Every person on Earth will have instant access to super-high-speed, low-latency wireless communications from any point on the planet, even in rainforests, mid-ocean and the Antarctic.

What is not widely acknowledged is that this will also result in unprecedented *environmental* change on a global scale. The planned density of radio frequency transmitters is impossible to envisage. In addition to millions of new 5G base stations on Earth and 20,000 new satellites in space, 200 billion transmitting objects, according to estimates, will be part of the Internet of Things by 2020, and one *trillion* objects a few years later. Commercial 5G at lower frequencies and slower speeds was deployed in Qatar, Finland and Estonia in mid-2018. The rollout of 5G at extremely high (millimetre wave) frequencies is planned to begin at the end of 2018.

Despite widespread denial, the evidence that radio frequency (RF) radiation is harmful to life is already overwhelming. The accumulated clinical evidence of sick and injured human beings, experimental evidence of damage to DNA, cells and organ systems in a wide variety of plants and animals, and epidemiological evidence that the major diseases of modern civilization—cancer, heart disease and diabetes—are in large part caused by electromagnetic pollution, forms a literature base of well over 10,000 peer-reviewed studies.

If the telecommunications industry’s plans for 5G come to fruition, no person, no animal, no bird, no insect and no plant on Earth will be able to avoid exposure, 24 hours a day, 365 days a year, to levels of RF radiation that are tens to hundreds of times greater than what exists today,

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without any possibility of escape anywhere on the planet. These 5G plans threaten to provoke serious, irreversible effects on humans and permanent damage to all of the Earth's ecosystems.

Immediate measures must be taken to protect humanity and the environment, in accordance with ethical imperatives and international agreements.

(Note: References are provided as [hyperlinks](#) and endnotes.)

5G will result in a massive increase in inescapable, involuntary exposure to wireless radiation

Ground-based 5G

In order to transmit the enormous amounts of data required for the Internet of Things (IoT), 5G technology, when fully deployed, will use millimetre waves, which are poorly transmitted through solid material. This will require every carrier to install base stations every 100 metres¹ in every urban area in the world. Unlike previous generations of wireless technology, in which a single antenna broadcasts over a wide area, 5G base stations and 5G devices will have multiple antennas arranged in "phased arrays"^{2,3} that work together to emit focused, steerable, laser-like beams that track each other.

Each 5G phone will contain dozens of tiny antennas, all working together to track and aim a narrowly focused beam at the nearest cell tower. The US Federal Communications Commission (FCC) has adopted rules⁴ permitting the effective power of those beams to be as much as 20 watts, ten times more powerful than the levels permitted for current phones.

Each 5G base station will contain hundreds or thousands of antennas aiming multiple laser-like beams simultaneously at all cell phones and user devices in its service area. This technology is called "multiple input multiple output" or MIMO. FCC rules permit the effective radiated power of a 5G base station's beams to be as much as 30,000 watts per 100 MHz of spectrum,² or equivalently 300,000 watts per GHz of spectrum, tens to hundreds of times more powerful than the levels permitted for current base stations.

Space-based 5G

At least five companies⁵ are proposing to provide 5G from space from a combined 20,000 satellites in low- and medium-Earth orbit that will blanket the Earth with powerful, focused, steerable beams. Each satellite will emit millimetre waves with an effective radiated power of up to 5 million watts⁶ from thousands of antennas arranged in a phased array. Although the energy reaching the ground from satellites will be less than that from ground-based antennas, it will irradiate areas of the Earth not reached by other transmitters and will be additional to ground-based 5G transmissions from billions of IoT objects. Even more importantly, the satellites will be located in the Earth's magnetosphere, which exerts a significant influence over the electrical properties of the atmosphere. *The alteration of the Earth's electromagnetic environment may be an even greater threat to life than the radiation from ground-based antennas (see below).*

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Harmful effects of radio frequency radiation are already proven

Even before 5G was proposed, dozens of petitions and appeals⁷ by international scientists, including the Freiburger Appeal signed by over 3,000 physicians, called for a halt to the expansion of wireless technology and a moratorium on new base stations.⁸

In 2015, 215 scientists from 41 countries communicated their alarm to the United Nations (UN) and World Health Organization (WHO).⁹ They stated that “numerous recent scientific publications have shown that EMF [electromagnetic fields] affects living organisms at levels well below most international and national guidelines”. More than 10,000 peer-reviewed scientific studies demonstrate harm to human health from RF radiation.^{10,11} Effects include:

- Alteration of heart rhythm¹²
- Altered gene expression¹³
- Altered metabolism¹⁴
- Altered stem cell development¹⁵
- Cancers¹⁶
- Cardiovascular disease¹⁷
- Cognitive impairment¹⁸
- DNA damage¹⁹
- Impacts on general well-being²⁰
- Increased free radicals²¹
- Learning and memory deficits²²
- Impaired sperm function and quality²³
- Miscarriage²⁴
- Neurological damage²⁵
- Obesity and diabetes²⁶
- Oxidative stress²⁷

Effects in children include autism,²⁸ attention deficit hyperactivity disorder (ADHD)^{29,30} and asthma.³¹

Damage goes well beyond the human race, as there is abundant evidence of harm to diverse plant- and wildlife^{32,33} and laboratory animals, including:

- Ants³⁴
- Birds^{35,36}
- Forests³⁷
- Frogs³⁸
- Fruit flies³⁹
- Honey bees⁴⁰
- Insects⁴¹
- Mammals⁴²
- Mice^{43,44}
- Plants⁴⁵
- Rats⁴⁶
- Trees⁴⁷

Negative microbiological effects⁴⁸ have also been recorded.

The WHO's International Agency for Research on Cancer (IARC) concluded in 2011 that RF radiation of frequencies 30 kHz - 300 GHz are possibly carcinogenic to humans (Group 2B).⁴⁹ However, recent evidence, including the latest studies on cell phone use and brain cancer risks, indicate that RF radiation is proven carcinogenic to humans⁵⁰ and should now be classified as a “Group 1 carcinogen” along with tobacco smoke and asbestos.

Most contemporary wireless signals are pulse-modulated. Harm is caused by both the high-frequency carrier wave and the low-frequency pulsations.⁵¹

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The deployment of 5G satellites must be prohibited

The Earth, the ionosphere and the lower atmosphere form the global electric circuit⁵² in which we live. It is well established that biological rhythms—of humans,^{53,54} birds,⁵⁵ hamsters,⁵⁶ and spiders^{57,58}—are controlled by the Earth's natural electromagnetic environment and that the well-being of all organisms depends on the stability of this environment, including the electrical properties of the atmosphere.^{59,60,61,62} Cherry, in a groundbreaking paper,⁶³ explained the importance of the Schumann resonances⁶⁴ and why ionospheric disturbances can alter blood pressure and melatonin and cause “cancer, reproductive, cardiac and neurological disease and death”.

These elements of our electromagnetic environment have already been altered by radiation from power lines. Power line harmonic radiation⁶⁵ reaches the Earth's ionosphere and magnetosphere, where it is amplified by wave-particle interactions.^{66,67} In 1985, Dr. Robert O. Becker warned that power line harmonic radiation had already changed the structure of the magnetosphere, and that the continued expansion of this effect “threatens the viability of all life on Earth”.⁶⁸ The placement of tens of thousands of satellites directly in both the ionosphere and magnetosphere, emitting modulated signals at millions of watts and millions of frequencies, is likely to alter our electromagnetic environment beyond our ability to adapt.⁶⁹

Informal monitoring has already provided evidence indicating serious effects on humans and animals from the approximately 100 satellites that have provided 2G and 3G phone service from low orbit since 1998. Such effects cannot be understood only from consideration of the low levels of radiation on the ground. Knowledge from other relevant scientific disciplines must be taken into account, including the fields of atmospheric physics and acupuncture.^{70,71,72,73} Adding 20,000 5G satellites will further pollute the global electric circuit^{74,75} and could alter the Schumann resonances,⁷⁶ with which all life on Earth has evolved. The effects will be universal and may be profoundly damaging.

5G is qualitatively and quantitatively different from 4G

The idea that we will tolerate tens to hundreds of times more radiation at millimetre wavelengths is based on faulty modelling of the human body as a shell filled with a homogeneous liquid.^{77,78} The assumption that millimetre waves do not penetrate beyond the skin completely ignores nerves,⁷⁹ blood vessels^{80,81} and other electrically conducting structures that can carry radiation-induced currents deep into the body.^{82,83,84} Another, potentially more serious error is that phased arrays are not ordinary antennas. When an ordinary electromagnetic field enters the body, it causes charges to move and currents to flow. But when extremely short electromagnetic pulses enter the body, something else happens: the moving charges themselves become little antennas that reradiate the electromagnetic field and send it deeper into the body. These reradiated waves are called Brillouin precursors.⁸⁵ They become significant when either the power or the phase of the waves changes rapidly enough.⁸⁶ 5G will probably satisfy both criteria.

In addition, shallow penetration in itself poses a unique danger to eyes and to the largest organ of the body, the skin, as well as to very small creatures. Peer-reviewed studies have recently been published, predicting thermal skin burns⁸⁷ in humans from 5G radiation and resonant absorption by insects,⁸⁸ which absorb up to 100 times as much radiation at millimetre

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wavelengths as they do at wavelengths presently in use. Since populations of flying insects have declined by 75-80 per cent since 1989 even in protected nature areas,⁸⁹ 5G radiation could have catastrophic effects on insect populations worldwide. A 1986 study by Om Gandhi warned that millimetre waves are strongly absorbed by the cornea of the eye, and that ordinary clothing, being of millimetre-size thickness, increases the absorption of energy by the skin by a resonance-type effect.⁹⁰ Russell (2018) reviews the known effects of millimetre waves on skin, eyes (including cataracts), heart rate, immune system and DNA.⁹¹

Regulators have deliberately excluded the scientific evidence of harm

Stakeholders thus far in the development of 5G have been industry and governments, while renowned international EMF scientists who have documented biological effects on humans, animals, insects and plants, and alarming effects on health and the environment in thousands of peer-reviewed studies have been excluded. The reason for the current inadequate safety guidelines is that conflicts of interest of standard-setting bodies “due to their relationships with telecommunications or electric companies undermine the impartiality that should govern the regulation of Public Exposure Standards for non-ionizing radiation”.⁹² Professor Emeritus Martin L. Pall lays out the conflicts of interest in detail, and the lists of important studies that have been excluded, in his literature review.⁹³

The thermal hypothesis is obsolete – new safety standards are needed

Current safety guidelines are based on the obsolete hypothesis that heating is the only harmful effect of EMFs. As Markov and Grigoriev have stated, “Today standards do not consider the real pollution of the environment with nonionizing radiation”.⁹⁴ Hundreds of scientists, including many signatories to this appeal, have proven that many different kinds of acute and chronic illnesses and injuries are caused without heating (“non-thermal effect”) from radiation levels far below international guidelines.⁹ Biological effects occur even at near-zero power levels. Effects that have been found at 0.02 picowatts (trillionths of a watt) per square centimetre or less include altered genetic structure in E. coli⁹⁵ and in rats,⁹⁶ altered EEG in humans,⁹⁷ growth stimulation in bean plants,⁹⁸ and stimulation of ovulation in chickens.⁹⁹

To protect against non-thermal effects, duration of exposure must be considered. 5G will expose everyone to many more transmissions simultaneously and continuously, day and night without cessation. New safety standards are needed and should be based on *cumulative exposure* and *not only on power levels* but also on frequency, bandwidth, modulation, waveform, pulse width and other properties that are biologically important. Antennas must be confined to specific, publicly identified locations. To protect humans, antennas must be located far from where people live and work, and excluded from the public rights-of-way where people walk. To protect wildlife, they must be excluded from wilderness sanctuaries and strictly minimized in remote areas of the Earth. To protect all life, commercial communications satellites must be limited in number and prohibited in low- and medium-Earth orbits. Phased arrays must be prohibited on Earth and in space.

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RF radiation has both acute and chronic effects

RF radiation has both immediate and long-term effects. Cancer and heart disease are examples of long-term effects. Alteration of heart rhythm¹⁰⁰ and changes in brain function (EEG)¹⁰¹ are examples of immediate effects. A syndrome that was called radiowave sickness¹⁰² in the former Soviet Union and is called electromagnetic hypersensitivity (EHS) around the world today¹⁰³ can be either acute or chronic. Professor Dr. Karl Hecht has published a detailed history of these syndromes, compiled from a review of more than 1,500 Russian scientific papers and the clinical histories of more than 1,000 of his own patients in Germany. Objective findings include sleep disorders, abnormal blood pressure and heart rate, digestive disorders, hair loss, tinnitus and skin rash. Subjective symptoms include dizziness, nausea, headache, memory loss, inability to concentrate, fatigue, flu-like symptoms and cardiac pain.¹⁰⁴

The EUROPAEM EMF Guideline 2016 states that EHS develops when people are “continuously exposed in their daily life” to increasing levels of EMFs, and that “reduction and prevention of EMF exposure” is necessary to restore these patients to health.¹⁰⁵ EHS should no longer be considered a disease, but an injury by a toxic environment that affects an increasingly large portion of the population, estimated already at 100 million people worldwide,^{106,107} and that may soon affect everyone¹⁰⁸ if the worldwide rollout of 5G is permitted.

The International Scientific Declaration on EHS and multiple chemical sensitivity (MCS), Brussels, declared in 2015 that “[i]naction is a cost to society and is not an option any more ... [W]e unanimously acknowledge this serious hazard to public health ... [urgently requiring] that major *primary prevention measures are adopted and prioritized, to face this worldwide pan-epidemic in perspective*” (emphasis added).¹⁰⁹

World governments are failing in their duty of care to the populations they govern

In their haste to implement 5G and to encourage the unconstrained use of outer space, the European Union, United States and national governments worldwide are taking steps to ensure a “barrier-free” regulatory environment.¹¹⁰ They are prohibiting local authorities from enforcing environmental laws,¹¹¹ and “in the interest of speedy and cost-effective deployment”, removing “unnecessary burdens ... such as local planning procedures [and] the variety of specific limits on electromagnetic field (EMF) emissions and of the methods required to aggregate them”.¹¹²

Governments are also enacting laws to make wireless facilities a permitted use in all public rights-of-way.¹¹³ To date, most wireless facilities have been located on private property at some distance from homes and businesses. In order for them to be spaced less than 100 metres apart as required by 5G, however, they will now be located on the sidewalk *directly in front of* homes and businesses and close above the heads of pedestrians, including mothers with babies.

Public notice requirements and public hearings are being eliminated. Even if there were a hearing and 100 scientific experts were to testify against 5G, laws have been passed making it illegal for local authorities to take their testimony into consideration. US law, for example, prohibits local governments from regulating wireless technology “on the basis of the environmental effects of radio frequency radiation”,¹¹⁴ and courts have reversed regulatory

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decisions about cell tower placement simply because most of the public testimony was about health.¹¹⁵ Insurers will not provide coverage against EMF risks,¹¹⁶ and there is zero clarity as to what entity will bear legal responsibility for damage to life, limb and property arising from exposure to 5G, whether ground- or space-based.¹¹⁷

In the absence of an agreed comprehensive legal regime governing activities in outer space, legal liability for those activities is non-existent, despite the prospect of whole continents, the atmosphere and the oceans being put at risk by them.

International agreements are being violated

Children and duty of care

The United Nations Convention on the Rights of the Child: States shall “undertake to ensure the child such protection and care as is necessary for his or her well-being” (art. 3), “ensure ... the survival and development of the child” (art. 6) and “take appropriate measures to combat disease ... taking into consideration the dangers and risks of environmental pollution” (art. 24(c)).

The Nuremberg Code (1947) applies to all experiments on humans, thus including the deployment of 5G with new, higher RF radiation exposure that has not been pre-market tested for safety. “The voluntary consent of the human subject is absolutely essential” (art. 1). Exposure to 5G will be involuntary. “No experiment should be conducted, where there is an a priori reason to believe that death or disabling injury will occur” (art. 5). The findings of over 10,000 scientific studies and the voices of hundreds of international organizations representing hundreds of thousands of members who have suffered disabling injury and been displaced from their homes by already-existing wireless telecommunications facilities, are “a priori reasons to believe that death or disabling injury will occur”.

Duty to inform and EMFs

The World Telecommunication Standardization Assembly (2012) of the International Telecommunication Union (ITU) stated that “[t]here is a need to inform the public of the potential effects of exposure to electromagnetic fields (EMFs)” and invited Member States “to adopt suitable measures in order to ensure compliance with relevant international recommendations to protect health against the adverse effect of EMF”.

The Mid-term review of the European Environment and Health Action Plan 2004-2010 (2008): “The European Parliament ... [n]otes that the limits on exposure to electromagnetic fields which have been set for the general public are obsolete, ... obviously take no account of developments in information and communication technologies, of the recommendations issued by the European Environment Agency or of the stricter emission standards adopted, for example, by Belgium, Italy and Austria, and do not address the issue of vulnerable groups, such as pregnant women, newborn babies and children.”

Resolution 1815 (Council of Europe, 2011): “Take all reasonable measures to reduce exposure to electromagnetic fields, especially to radio frequencies from mobile phones, and particularly the exposure to children and young people.”

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Environment

The Declaration of the United Nations Conference on the Human Environment (1972): “The discharge of toxic substances ... in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems” (principle 6).

The World Charter for Nature (1982): “Activities which are likely to cause irreversible damage to nature shall be avoided ... [W]here potential adverse effects are not fully understood, the activities should not proceed” (art. 11).

The Rio Declaration on Environment and Development (1992): “States have ... the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction” (principle 2).

The United Nations World Summit on Sustainable Development (2002): “There is an urgent need to ... create more effective national and regional policy responses to environmental threats to human health” (para. 54(k)).

The African Convention on the Conservation of Nature and Natural Resources (2017): “The Parties shall ... take all appropriate measures to prevent, mitigate and eliminate to the maximum extent possible, detrimental effects on the environment, in particular from radioactive, toxic, and other hazardous substances and wastes” (art. 13).

Health and human rights

The Universal Declaration of Human Rights: “Everyone has the right to life, liberty and security of person” (art. 3).

The United Nations Global Strategy for Women’s, Children’s and Adolescents’ Health (2016-2030) has as objectives and targets to “transform”, by expanding enabling environments; to “survive”, by reducing maternal and newborn mortality; and to “thrive” by ensuring health and well-being and reducing pollution-related deaths and illnesses.

Space

The Outer Space Treaty (1967) requires that the use of outer space be conducted “so as to avoid [its] harmful contamination and also adverse changes in the environment of the Earth” (art. IX).

The United Nations Guidelines for The Long-Term Sustainability of Outer Space Activities (2018): “States and international intergovernmental organizations should address ... risks to people, property, public health and the environment associated with the launch, in-orbit operation and re-entry of space objects” (guideline 2.2(c)).

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World governments are playing dice with life on Earth

Albert Einstein famously asserted that “God does not play dice”.¹¹⁸ Yet by pursuing the broadcast on Earth and from space of 5G, an unprecedented technology of millimetre waves previously used as an energy weapon in military operations and crowd control,¹¹⁹ world governments are recklessly playing dice with the future of life on Earth.

To refuse to accept and apply relevant and valid scientific knowledge is ethically unacceptable. Existing research shows that 5G—and especially space-based 5G—contravenes principles enshrined in a host of international agreements.

We call upon the UN, WHO, EU, Council of Europe and governments of all nations,

(a) *To take* immediate measures to halt the deployment of 5G on Earth and in space in order to protect all humankind, especially the unborn, infants, children, adolescents and pregnant women, as well as the environment;

(b) *To follow* the United Nations Convention on the Rights of the Child and Council of Europe Resolution 1815 by informing citizens, including teachers and physicians, about the health risks (to adults and children) from RF radiation, and *why they should and how they can* avoid wireless communication and base stations, particularly in or near day-care centres, schools, hospitals, homes and workplaces;

(c) *To favour and implement* wired telecommunications instead of wireless;

(d) *To prohibit* the wireless/telecommunications industry through its lobbying organizations from persuading officials to make decisions permitting further expansion of RF radiation, including ground- and space-based 5G;

(e) *To appoint* immediately—without industry influence—international groups of independent, truly impartial EMF and health scientists with no conflicts of interest,¹²⁰ for the purpose of establishing new international safety standards for RF radiation that are not based only on power levels, that consider cumulative exposure, and that protect against *all* health and environmental effects, not just thermal effects and not just effects on humans;

(f) *To appoint* immediately—without industry influence—international groups of scientists with expertise in EMFs, health, biology and atmospheric physics, for the purpose of developing a comprehensive regulatory framework that will ensure that the uses of outer space are safe for humans and the environment, taking into account RF radiation, rocket exhaust gases, black soot, and space debris and their impacts on ozone,¹²¹ global warming,¹²² the atmosphere and the preservation of life on Earth. Not only ground-based but also space-based technology must be sustainable¹²³ for adults and children, animals and plants.

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