200 Brook Hollow Road
Mount Pleasant, PA 15666

October 9, 2020

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
Harrisburg, PA 17120

Re: Michael T. Jennings v. West Penn Power Company
Docket No. C-2018-3006031

Dear Secretary Chiavetta,

Attached please find my **Main Brief of Complainant Michael T. Jennings** in the above-referenced matter. This document has been served on West Penn Power as shown in the Certificate of Service.

Please contact me if you have any questions.

Very Truly Yours,

Michael T. Jennings
724-613-4262
Lilmac2@zoominternet.net

ssj
Enclosures

CC: ALJ Watson
West Penn Power, as per Certificate of Service

200 Brook Hollow Road
Mount Pleasant, PA 15666

October 9, 2020

VIA E-FILING, ELECTRONIC MAIL, FIRST CLASS MAIL

Administrative Law Judge Jeffrey A. Watson
Pennsylvania Public Utility Commission
Piatt Place, Suite 220
301 5th Avenue
Pittsburgh, PA 15222

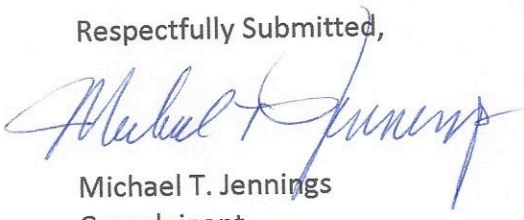
Re: Michael T. Jennings v. West Penn Power Company
Docket No. C-2018-3006031

Dear Honorable Judge Watson,

Attached please find **Main Brief of Complainant Michael T. Jennings** in the above-referenced matter. This document has been served on West Penn Power as shown in the Certificate of Service.

Please contact me if you have any questions.

Respectfully Submitted,



Michael T. Jennings
Complainant

ssj
Cc: Rosemary Chiavetta, Esq. Public Utility Commission
As Per Certificate of Service

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BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MICHAEL T. JENNINGS	**:**	
	:	
v.	**:**	**Docket No. C-2018-3006031**
	:	
WEST PENN POWER COMPANY	**:**	

MAIN BRIEF OF COMPLAINANT MICHAEL JENNINGS
Pro se

OCTOBER 9, 2020

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HISTORY OF THE PROCEEDINGS

On November 14, 2018, the Complainant filed the above-captioned Formal Complaint with the Commission. West Penn was electronically served with the Formal Complaint on November 15, 2018.

On December 5, 2018, the Respondent filed an Answer and New Matter to the Formal Complaint.

On January 25, 2019, an Interim Order was entered which, in part, established a litigation schedule in this proceeding which included a requirement that the parties to identify any fact or expert witnesses they intended to call to testify on or before March 29, 2019.

On February 12, 2019, an Interim Order Revising the Litigation Schedule, and an Interim Order Cancelling the Prehearing Conference Scheduled for February 19, 2019 was entered. The Interim Order Revising the Litigation Schedule dated February 12, 2019, maintained the date on or before which the parties were required to identify witnesses as March 29, 2019.

On March 28, 2019, the Complainant filed a letter identifying his witnesses in this proceeding.

On March 29, 2019, Respondent provided notice and summaries of testimony for its factual and expert witnesses.

On May 26, 2019, the Complainant filed a Motion for Extension of Time to Provide Direct Testimony.

On May 31, 2019, the Complainant filed an Emergency Request revising his previously filed Motion for Extension of Time to Provide Direct Testimony.

On June 3, 2019, the Complainant filed answer Motion for Extension of Time to Secure a Replacement expert witness.

On June 6, 2019, the Complainant filed another Motion for Extension of Time to Provide Direct Testimony.

On July 2, 2019, an Interim Order Providing for Second Revised Initial Litigation Schedule was entered. This Interim Order, in part, revised the deadlines for the service of Complainant's direct testimony.

On August 12, 2019, a Third Revised Initial Litigation Schedule was entered.

On October 24, 2019, a Protective Order was issued.

On November 22, 2019, the Complainant submitted a Revised Identification of Factual and Expert Witnesses.

On November 25, 2019, the Complainant served his Direct Testimony and the testimony of his expert and factual witnesses.

On May 1, 2020, Respondent served its rebuttal testimony.

On July 2, 2020, the Complainant filed a Motion in Limine seeking to strike the rebuttal testimony of Respondent. The Motion in Limine contained a Notice to Plead directing Respondent to file a response within 20 days.

On July 7, 2020, an Interim Order Denying Complainant's Request for Subpoena was entered.

On July 7, 2020, an Interim Order Converting In-Person Hearings to Telephonic Hearings was entered.

On July 7, 2020, a Corrected Telephonic Hearing Notice was entered.

On July 15, 2020, Complainant filed a Certificate of Service.

On July 17, 2020, Respondent filed a Certificate of Service.

On July 22, 2020, Respondent filed an Answer to Motion in Limine.

On July 23, 2020, an Interim Order Denying Complainant's Request for Disqualification of the Undersigned Presiding Officer.

On July 23, 2020, a Notice of Appearance of Curtis S. Renner on behalf of West Penn Power Company is filed.

On July 23, 2020, a document, Commission email to Complainant re large exhibits was filed.

On August 25, 2020, the Transcript of Initial Call-In Telephonic Hearing held July 23, 2020, pages 1-261, was filed.

On August 27, 2020, the Transcript of Initial Call-In Telephonic Hearing held July 24, 2020, pages 1-108, was filed.

On September 3, 2020, hearing Transcript Exhibit July 24, 2020 was removed from Web.

On September 4, 2020, further Transcript with exhibits (Hearing July 24, 2020, pgs. 262-369) was filed.

On September 10, 2020, the Transcript Exhibit ALJ 4, exhibits from hearing date July 24, 2020, was filed.

On September 10, 2020, the Transcript Exhibits, from hearing date July 24, 2020, ALJ 1, 2, 3, 5, Interrogatories A, Photographs LL, were filed.

On September 11, 2020, the Revised Testimony with exhibits of Complainant was filed.

TABLE OF AUTHORITIES

Cases Public Record - 52 Pa. Code § 5.406(a)(2)

State Statute- per 52 Pa. Code § 5.406(a)(2)

Federal Statutes – Public Record per 52 Pa. Code § 5.406(a)(2)

Rules and Regulations – Public Record per 52 Pa. Code § 5.406(a)(2)

Other Authorities – Public Record per 52 Pa. Code § 5.406(a)(1)

APPENDICES LISTING

I. INTRODUCTION

Michael Jennings, pro se Complainant, brought his case against West Penn Power in response to West Penn Power's insistence that the Complainant acquiesce to West Penn Power's demands to install a smart meter on his home or to be subject to imminent loss of electricity. The Complainant was informed that prompt filing of a formal complaint with the PUC against West Penn Power was the sole method by which he could retain electrical service while refusing to consent to the installation of a smart meter which would risk the health of his disabled son to the point of death from seizures, as well as exacerbate the health conditions of himself and his wife who both have medical diagnoses covered by the Americans with Disabilities Act. A formal complaint, concerning the Complainant's property at 200 Brook Hollow Road, Mount Pleasant, PA, was filed with the PA Public Utility Commission on November 15, 2018. Michael Jennings never requested a "smart" meter nor does he intend to do so.

II. SUMMARY OF THE ARGUMENT

This Brief is submitted by Michael Jennings to support his claim that the installation by the West Penn Power Company (WPP) of an AMI smart meter at his home will adversely affect his health, his wife's health and the health of his disabled son and is neither "safe" nor "reasonable" under 66 Pa. C.S. § 1501 as to him or his family.

Complainant brought his case against West Penn Power in response to West Penn Power's insistence that the Complainant acquiesce to West Penn Power's demands to install a smart meter on his home or be subject to imminent loss of electricity. The Complainant was informed that prompt filing of a formal complaint with the PUC against West Penn Power was the sole method by which he could retain electrical service while refusing to consent to the installation of a smart meter which would risk the health of his disabled son to the point of death from seizures, as well as exacerbate the health conditions of himself and his wife who both have medical diagnoses covered by the Americans with Disabilities Act.

Each of Michael Jennings' family members has their own medical diagnoses. (See Appendix A.) Michael Jennings has a diagnosis of stage 4 colon cancer; Susan Jennings is diagnosed with multiple sclerosis and hypothyroidism; and Michael Jennings' son, McKenzie, has numerous comorbid neurological medical diagnoses, some of which started at his birth. (Tr. p. 49, lines 7-12) McKenzie is the main subject of Michael Jennings' formal complaint. McKenzie has been accommodated throughout his lifetime, until the "smart" meter issue.

McKenzie already exhibits sensitivities to things in his environment, gluten being only one. It is an invisible ingredient in his food, but harms his body. McKenzie is more vulnerable and susceptible to environmental toxins and this topic is discussed further in this section below.

There are many toxins in our world today and a lot of them are invisible to the naked eye, like radiofrequency radiation (RF). RF is an environmental toxin as the FCC has safety guidelines for exposure to RF. Take salt, for example. The chemical reactions caused by salt may

be invisible, but the changes it brings are evident. The same is true for RF. See Appendix C, Appendix D, and page 12-13 for research proving biological harm, which includes single and double DNA strand breaks. Also, there are over 230 people reporting symptoms from the invisible RF emissions from the "smart" meters. (See Appendix B.)

The quality of being safe means the absence of risk or harm. West Penn Power takes the extreme and unreasonable position that RF exposure from its smart meters is utterly incapable of causing harm, as if that position had been scientifically proven and generally accepted in the scientific community. To the contrary, reliable scientific evidence shows that RF exposure from smart meters such as West Penn Power's, like RF exposure from cell phones, is a likely cause of biological harm to humans, particularly people like the Complainant and his family who are all covered under the ADA.

Complainant, acting *pro se*, attempted to submit evidence demonstrating adverse biological harm associated with smart meters at a hearing on July 23, 2020, pursuant to the Order of ALJ Jeffrey A. Watson. The PUC need not resolve the scientific disagreement between the parties to resolve this case. The evidence at the very least shows potential harm to Complainant and his family, especially to his disabled son from RF exposure such as that emitted from smart meters. ALJ Watson prevented ***all*** of such evidence from being submitted by Complainant during the hearing, which lasted approximately 10 hours. ALJ Watson's conduct does not negate the existence of the evidence Complainant intended to present, as complainant pre-filed his exhibits and as well as the written testimony of his son's medical doctor.

The Commission need not resolve the scientific disagreement between the parties to resolve this case and many more like this one. The evidence shows the potential harm to Complainant and his family from RF exposure such as that emitted from smart meters. Forcing the Complainant and his family to accept exposure to RF from smart meters that he knows will further harm their health, and cause the death of their son by forcing them to do so against their doctors' explicit medical directives, offends fundamental principles of respect for personal autonomy, and constitutes unreasonable and unsafe service to Complainant and his family in violation of section 1501.

In almost every state where smart meters have been deployed, customers have the ability to opt out, which gives customers who are more vulnerable to environmental toxins the chance to protect themselves and minimize effects on wildlife, pets, and vegetation in their immediate area. Pennsylvania is a notable exception, where the PUC seems to have willfully misinterpreted Act 129 of 2008 and required every utility customer to accept a smart meter without exception, even utility customers who object based on diagnosed medical conditions which are covered by the ADA and who have explicit medical directives from their treating physicians. The PUC's flawed interpretation of Act 129 of 2008 violates the Act's plain meaning.

Michael Jennings and his wife have made many remediations to their home to accommodate McKenzie: moved to get out of a neighborhood full of WiFi networks and likely

had “smart” meters**,** no electric heat (electric igniter)**,** no electric hot water tank (electric igniter)**,** no electric stove (electric igniter), turn off almost all electricity at night at the breakers, no WiFi – only wired connections, no blue tooth, no hotspots, use airplane mode most of the time, no microwave oven, no cordless telephones, no satellite TV, use a land line, use battery operated clocks, remediated McKenzie’s bedroom according to Building Biology protocols, and will continue to remediate as more is learned. McKenzie’s health and welfare are the Jennings’ first priority in life as this is their mission from the Lord Jesus Christ.

Michael Jennings and his wife are McKenzie’s only advocates and they will continue to fight anything that will cause him harm as McKenzie has no voice for himself. West Penn Power and the PA PUC do not have the Jennings’ family’s best interest at heart as neither entity is a hospital or a health care provider. West Penn Power and the PA PUC are violating Article 1 of the Pennsylvania Constitution:

> “**§ 1. Inherent rights of mankind.** All men are born equally free and independent, and have certain inherent and indefeasible rights, among which are those of enjoying and **defending life** and liberty, of acquiring, possessing and **protecting property** and reputation, and of **pursuing their own happiness.”**[1] [Emphasis added.]

West Penn Power and the PA PUC are also violating the Fourteenth Amendment of the US Constitution:

> “**Fourteenth Amendment Section 1**
> All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. 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.”[2]

The Jennings family has the State and Federal constitutional right to make fundamental choices about their home, property, bodies, and privacy. West Penn Power and the PA PUC are in violation of the Pennsylvania Constitution and the US Constitution by not providing an ADA accommodation and by forcing a “smart” meter on the Jennings’ property, which would further expose the Jennings’ to harmful RF radiation emissions. It is most evident the General Assembly did not intend to harm the health of any Pennsylvanian nor violate the Constitution of Pennsylvania or the United States:

> “**§ 1922. Presumptions in ascertaining legislative intent.**
> (3) That the General Assembly does not intend to violate the Constitution of the United States or of this Commonwealth.

---

[1] Constitution of the Commonwealth of Pennsylvania, § 1, Inherent rights of mankind, https://www.legis.state.pa.us/WU01/LI/LI/CT/HTM/00/00.001..HTM

[2] Constitution of the United States, Fourteenth Amendment, Section 1, https://constitution.congress.gov/constitution/amendment-14/

(5) That the General Assembly intends to favor the public interest as against any private interest."[3]

III. ARGUMENT

A. Dr. Christopher C. Davis has proven harm in his research – PUBLIC RECORD – National Library of Medicine – Per 52 Pa. Code 5.406(a)(2).

Dr. Christopher C. Davis is a scientific researcher and teacher in physics and electrical engineering at the University of Maryland. Dr. Davis has authored or co-authored over 260 articles published in peer-reviewed scientific journals, principally reporting on studies he has conducted. Dr. Davis is embraced and highly esteemed by the PA PUC and has testified in numerous PUC Formal Complaint hearings testifying under oath that there are no adverse biological effects from microwave radiation.

Dr. Davis has proven there are adverse biological effects by microwave radiation in at least two of his research studies. In the first study (See Appendix C), *Microwave effects on plasmid DNA*, dated May 1987, Dr. Davis proved there are single and double DNA strand breaks[4], which has been replicated numerous times since 1987. It is clearly stated in the abstract,

> "The exposure of purified plasmid DNA to microwave radiation at nonthermal levels in the frequency range from 2.00 to 8.75 GHz produces **single- and double-strand breaks** that are detected by agarose gel electrophoresis."[5] [Emphasis added.]

The second study (See Appendix D), *Effects of continuous and pulsed 2450-MHz radiation on spontaneous lymphoblastoid transformation of human lymphocytes in vitro*, was for the US Navy, report date December 15, 1989, and received by the Navy on January 9, 1990. Notice the term "pulsed" was used in this study. A quote from the abstract:

> **"**This report describes the results of research in the following areas: Whether spontaneous 3r phytohemagglutinin-induced transformation of human Lymphocytes in vitro is affected by exposure to continuous wave (CW) or **pulsed Wave (PW)** 2450 MHZ microwaves. **Conclusion: it is affected – by PW in a non-thermal way.** Comparison of CW and PW microwave exposure at the same average specific absorption rate (SAR) – **PW is markedly different and acts in a non-heating way.** Comparison of effects obtained by microwave and conventional heating needed to elevate the sample temperature by 0.5, 1.0, 1.5, and 2.0 C. Conclusion: CW microwaves and conventional heating produce the same effects, PW exposure behave differently. To determine whether the chromosomal aberrations are induced under the same conditions of the experiment.

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[3] Title 1, General Provisions, Part I. The Pennsylvania Consolidated Statutes, § 1922, https://www.legis.state.pa.us/cfdocs/legis/LI/consCheck.cfm?txtType=HTM&ttl=01

[4] Microwave effects on plasmid DNA, https://pubmed.ncbi.nlm.nih.gov/3575652/, J L Sagripanti, M L Swicord, C C Davis, Single and double DNA strand breaks, Radiation Research, 1987 May;110(2):219-31.

[5] Ibid.

Conclusion: they are not."[6] [Emphasis added.]

Dr. Davis clearly states within the article the said effect occurred directly in a non-heating way. Dr. Davis' second study on lymphoblastoid transformation of human lymphocytes in vitro is listed within the BioInitiative Report's Research Summaries which "…is a list of research publications (1990-2017) on the ***biological effects of radiofrequency*** and cell phone radiation."[7]

B. 230+ Harm Formal Complaints before the PA PUC – PUBLIC RECORD from the PA PUC Website per 5.406(a)(1) - See Appendix B

West Penn Power and the PUC are acutely aware of harm as many other complainants have come before the PUC in the formal complaint process who are already being harmed by the "smart" meter radiofrequency radiation (RF) and electromagnetic frequency radiation (EMF) emissions which are environmental toxins (the FCC does have guidelines concerning exposure to these emissions RF/EMF as an environmental toxin). See Appendix B for a list of harm formal complaints who have come before the PUC. The PUC is choosing to ignore these complaints. The PUC has heard many cases where complainants speak about the symptoms which include heart palpitations, headaches, fatigue, sleep disturbances, difficulty concentrating, memory impairment, dizziness, nausea, seizures, among others. No matter how many expert witnesses testified, how many symptoms were reported, or how many physicians' letters were produced, no relief has been granted to date.

C. PA PUC Formal Complaints in Particular - PUBLIC RECORD from the PA PUC Website, per 52 Pa. Code 5.406 (a)(1):

1. Maria Povacz, PA PUC Docket No. C-2015-2475023

In the case of *Maria Povacz v. PECO Energy Company*, Docket No. C-2015-2475023, Administrative Law Judge Darlene D. Heep's states in the Initial Decision, January 26, 2018:

> "While there is no showing that EFs from smart meters are causing this problem, and PECO successfully rebutted any such claim, the **preponderance of the evidence does suggest that some other aspect of the PECO smart meters is inimitably perceptible by and contrary to the health and well-being of the individual Ms. Povacz.** This conclusion is supported by medical and circumstantial evidence which included her credible testimony regarding the [Begin Confidential], [End Confidential] her testimony that her ill health is worse when in her yard near the smart meters of her neighbors, her consultation with physicians, including Dr. Talmor, **who specializes in treating patients with exceptional sensitivities,** and **her relief when moving away from**

[6] Effects of continuous and pulsed 2450-MHz radiation on spontaneous lymphoblastoid transformation of human lymphocytes in vitro, Bioelectromagnetics, 1992;13(4):247-259. doi: 10.1002/bem.2250130402, E M Czerska, E C Elson, C C Davis, M L Swicord, P Czerski https://apps.dtic.mil/dtic/tr/fulltext/u2/a216500.pdf

[7] Henry Lai's Research Summaries list, https://bioinitiative.org/research-summaries/.

> **smart meters or traveling.** *Testimony of Maria Povacz Hearing Transcript* at. 22-27; *Direct Testimony of Hanoch Talmor, M.D.* Although not EFs, Dr. Talmor recognized that some aspect of the smart meters causes Ms. Povacz health problems and recommended that she not install a meter in her home. *Direct Testimony of Hanoch Talmor* at 5:10-13; (JA002656)….**That Maria Povacz's claim that her health would be adversely affected by the installation of a smart meter attached to her home is granted**."[8] [Emphasis added.]

ALJ Heep found a preponderance of evidence which suggested some aspect of the meter was contrary to the health and well-being of Ms. Povacz. The Commission overturned this decision by ALJ Heep with full knowledge and proof that some aspect of the meter was causing harm to Ms. Povacz and in light of a physician's explicit medical directives. **The Commission's reversal of the ALJ Heep's Initial Decision was a prejudicial action against a pro se complainant.**

2. Alexia McKnight – PA PUC Docket No. C-2017-2621057

On October 19, 2018**,** ALJ Heep entered the Initial Decision in the case of *Alexia McKnight v. PECO Energy Company*, Docket No. C-2017-2621057. At page 30 ALJ Heep says,

> "8. There is **sufficient evidence to support a finding that Mrs. McKnight will be adversely affected** by reinstallation of the Landis + Gyr AMI meter #127832547 and that reinstallation of the Landis + Gyr AMI meter #127832547 would constitute **unsafe or unreasonable service in violation of 66 Pa.C.S. § 1501.** *Kreider v. PECO Energy Co.*, Docket No. P-2015-2495064 at 23 (Order entered Jan. 28, 2016) (citing *Woodbourne-Heaton*, 1992 Pa. PUC Lexis 160, at *12-13)."[9]

ALJ Heep found sufficient evidence that Mrs. McKnight would be adversely affected by the reinstallation of the meter and it would create unsafe or unreasonable service which would violate 66 Pa. C.S. § 1501. Again, the Commission ignored the proof of harm and a physician's explicit medical directives and also said PECO could install a different brand of smart meter, as if that would make any difference. **This was a prejudicial action against a pro se complainant.**

D. Research which supports Complainant's assertions of adverse biological effects and harm to the central nervous system (See Appendix I.)

Michael Jennings, pro se complainant, brought forth numerous exhibits at his hearing, on July 23-24, 2020, which demonstrated adverse biological effects associated with the RF/EMF emissions of "smart" meters, which was pursuant to ALJ Watson's Interim Order dated July 7, 2020. ALJ Watson prevented Michael Jennings' evidence from being entered into the record, most of which was wrongfully expunged. (See Section Q. Bias and Prejudicial Actions Against A

[8] PA PUC Docket No. C-2015-2475023, *Povacz v. PECO Energy Company*, Initial Decision, p. 28, 32. http://www.puc.state.pa.us/pcdocs/1558335.pdf.
[9] PA PUC Docket No. C-2017-2621057, *Alexia and Lawrence McKnight v. PECO Energy Co.*, Initial Decision, p. 30, http://www.puc.state.pa.us/about_puc/consolidated_case_view.aspx?Docket=C-2017-2621057.

Pro Se Complainant, No. 13. Exhibits were not exempt from prejudicial actions.) Even though Michael Jennings exhibits were wrongfully expunged in prejudicial actions, this does not negate the evidence Michael Jennings presented, nor does it negate the medical diagnoses which make the Jennings family more vulnerable to environmental toxins which would include RF/EMF as the FCC has guidelines for such.

The enormous amounts of research cannot be ignored! For every study that is wrongfully expunged, there are hundreds more just like it. Because Michael Jennings was not allowed to enter almost all of his exhibits, which clearly supported his assertions of adverse biological effects and harm to the central nervous system (the reason West Penn Power wanted to expunge them), he presents research studies in Appendix I, which support his assertions.

E. Henry Lai's Radiofrequency Radiation Research Summaries

Henry Lai's Research is **relevant, independent, peer-reviewed, published literature documenting biological effects of non-ionizing radiation (ELF-EMF, Static Fields and RFR).** Dr. Lai's peer-reviewed, published research summaries are in ten sets of abstracts in PDF form, which is cost prohibitive to print and is too long to include in this document. Adverse health effects in Dr. Lai's research. Sets Nos. 8, 9, and 10 are pertinent to Michael Jennings' Formal Complaint as these are specific to neurological effects.

Description Dr. Lai's 10 Sets of Research Summaries: [10]

No. 1 – RFR Research Summary, 1990-2017,
1013 pages of research studies
No. 2 – ELF-EMF/Static Field Free Radical **(Oxidative Damage)** Abstracts, 2019, 125 pages.
229 studies
No. 3 – RFR Free Radical **(Oxidative Damage)** Abstracts, 2019, 118 pages
225 studies
No. 4 – ELF-EMF Comet Assay Abstracts, 24 pages,
46 studies
No. 5 – RFR Comet Assay Abstracts, 2017, 25 pages,
76 studies
No. 6 – Graphic of Percent Comparison Showing 'Effect vs No Effect' **Free Radical Damage,** 1 page
No. 7 – Electrohypersensitivity Abstracts, 2017,
50 pages
No. 8 – ELF-EMF/Static Field **Neurological Effects** Abstracts, 2019,
115 pages
No. 9 – RFR **Neurological Effects** Abstracts, 2019, **237 pages**

[10] Henry Lai's Research Summaries, https://bioinitiative.org/research-summaries/.

No. 10 – Graphic of Percent 'Comparison Showing "Effect vs No Effect"
Neurological Studies, 2019, 1 page **[Emphasis added.]**

F. West Penn Power – Show Me the Studies

Around July 2018, West Penn Power sent a brochure to Michael Jennings' home that stated, "…numerous studies have shown that smart meters using radio frequency (RF) technologies pose no health risk." (Exhibit MM - Your Power is about to get Brighter, exhibit **wrongfully expunged**.) Where are the studies from Itron®? Where are the studies from West Penn Power? West Penn Power has not provided any studies, from any source, conducted on "smart" meters proving the "smart" meters pose no health risks to Michael Jennings to date.

G. FCC Grant of Equipment Authorization for iTron® FCC ID SK9AMI7 – Governmental Advice per 052 Pa. Code 5.406(a)(2)

The FCC Grant Authorization stipulates,

> "The transmitter must be installed to provide a separation distance of **at least 20 cm from all persons** and must not be co-located or operating in conjunction with any other antenna or transmitter. Installers and end-users must be provided with transmitter operation conditions for satisfying RF exposure compliance."[11] [Emphasis added.]

Deployment of a "smart" meter at Michael Jennings property would not provide a distance of 20 cm from all persons. There are many times the family and others would be less than 20 cm from the meters' locations. Mr. Ahr stated (Complainant's Exhibit A, Interrogatory Set 1, No. 50) that it is safe to touch a smart meter. According to the FCC, there should be a separation distance of ***at least 20 cm*** from all persons. Mr. Ahr also replied (Complainant's Exhibit A, Interrogatory Set II, No. 34) there is no safety distance from the "smart" meter that West Penn Power is installing in Michael Jennings' territory according to the FCC equipment grant or any other relevant documentation. It is odd that Mr. Ahr is presented as an expert, yet he is not familiar with the FCC's RF exposure compliance guidelines.

H. Averages

> "Averages – or means – are funny things. Often, in mathematics, they give us little information. Therefore, statisticians prefer more complicated calculations such as variances and standard deviations. The point, however, is simple: average is sometimes an elusive concept and **does not always represent the extremes**."[12]

> "While averages can be very useful tools, they can also be **misleading** for a variety of reasons. In particular, **averages can obscure the information**

[11] Id, FCC ID SK9AMI7 AMI7 Module by Itron, Inc. Retrieved from https://fccid.io/SK9AMI7.
[12] Shelli Prindle, BA, (Mathematics, Graduate of Seton Hill University, Math Teacher, Living in Awe!, Xulon Press, 2012, p.37.

contained in data sets."[13]

Mathematicians agree, averages are misleading and elusive and do not give a true picture of the extreme values in the determination of the average. That is exactly why West Penn Power used the averages trick: to hide the true extremes.

Mr. Ahr gave ambiguous and conflicting answers to the question of how many times the "smart" meter would transmit data per day. In his answer to Interrogatory Set I, No. 46 (See Complainant's Exhibit A), Mr. Ahr reported the meter would transmit data three times in a 24-hour period. Then, in his answer to Interrogatory Set II, No. 8 (See Complainant's Exhibit A), Mr. Ahr stated "…the average number of transmissions in a 24-hour period is ~1,268…and the maximum number of transmissions in a 24-hour period is ~25,916." So, what is the correct answer? What are the **extreme values** from Mr. Ahr's average calculations? The use of averages is elusive and grossly misleading.

Even the "experts" cannot agree. Mr. Glenn Pritchard, PECO Manager of Advanced Grid Operations and Technology, testified as an expert in the design, operations and technology of advanced meter installations in the case before the PA PUC, *Patti Lynn Caesar v. PECO Energy Company*, C-2017-2605462 **(PUC Website - Public Record - per 52 Pa. Code 5.406 (a)(1))**. Mr. Pritchard explains the "Mesh Network," which is the type of system West Penn Power is deploying.

Mr. Pritchard testified concerning the Mesh Network (which is the type of network West Penn Power is using):

> "…actually creates what we can personify as a **spiderweb of communications**...We examined several Mesh Network solutions for PECO…The point-to-point system we chose, the FlexNet system, has 175 or 178, specifically, collection points which is much, much less of the collection points. That is important because the number of transmissions or how active the radios are. (TR. 69). **Mesh networks can have up to hundreds of thousands of transmissions.** The PECO system does not. (Tr. 70)."[14] [Emphasis added.]

Who are customers and complainants to believe? Who really knows the truth about the number of transmissions when there is so much contradictory information from industry itself. West Penn Power is using averages and this is misleading information. They are concealing material information which is pertinent to this formal complaint.

Michael Jennings presented many studies on the central nervous system which proved harm, but these were wrongfully expunged during the hearing. (See Appendix I and Dr. Lai's research summaries p. 7-8, and also see p. 14 for links to research), it is shown that the central nervous system can be adversely affected by RF/EMF emissions, which occur during

[13]Helmenstine, A. M. (2019, June 25). Need to Know Your GPA? Calculate the Mean or Average. Retrieved from https://www.thoughtco.com/how-to-calculate-the-mean-or-average-609546.
[14] See *Patti Lynn Caesar v. PECO Energy Company,* Docket No. C-2017-2605462, Initial Decision, January 11, 2019, pp. 15-16.

transmissions. One pulse, or transmission, is one too many for McKenzie's compromised, vulnerable, and susceptible health conditions which are neurological in nature. Mr. John Ahr states the "Radio frequency ("RF") signals travel in all directions." (See Complainant's Exhibit A, Answer to Interrogatory Set II, No. 5, a.) This means no matter where you are in relation to the meter, radiofrequency microwave radiation is traveling from the meter in all directions.

These transmissions would interrupt, disrupt, and interfere with McKenzie's central nervous system. West Penn Power and the PA PUC would be exposing McKenzie to these pulses or transmissions in direct opposition to the explicit medical directives of medical professionals.

I. Human Health Experimentation – Nuremburg Code

Deploying a "smart" meter on Michael Jennings' property is tantamount to human health experimentation in which there was no consent. Informed voluntary consent for experiment-tation was not obtained from Michael Jennings and he was not given options to withdraw from said experiment. The US Department of Health and Human Services, National Institutes of Health (**Governmental Advice**), lists in their report on the Nuremburg Code the specific points of the Code, two of which are pertinent to this formal complaint:

> "1. The voluntary consent of the human subject is absolutely essential.
> 9. During the course of the experiment, the human subject should be at liberty to bring the experiment to an end…"[15]

This is a basic human rights violation.

J. Violation of 52 Pa. Code § 57.194 (a)(c)

Mr. Ahr reported (Interrogatory Set II, No. 6) that "[t]he utility is not required to monitor adherence to the Federal Communications Commission ("FCC") standards and limits regarding radio frequency ("RF") emissions." Equipment ages over time and with no continued monitoring, the FCC limits could be exceeded. No one is protecting consumers who have this RF/EMF emitting device on their homes. This is a violation of 52 Pa. Code § 57.194 (a)(c) which states:

> "(a) An EDC shall furnish and **maintain adequate, efficient, safe** and reasonable service and facilities, and **shall make repairs, changes, alterations, substitutions, extensions, and improvements** in or to the service and facilities **necessary or proper for the accommodation, convenience and safety of its patrons, employees and the public.**
> (c) An EDC shall make **periodic inspections of its equipment** and facilities in accordance with good practice and in a manner satisfactory to the Commission."

Mr. Ahr stated Itron's involvement in the deployment of the "smart" meters. He said, "Itron-certified personnel are involved **early in the development phase of the project** therefore

[15] US Department of Health and Human Services. (n.d.). Retrieved September 11, 2020, from https://history.nih.gov/display/history/NuremburgCode, ["Trials of War Criminals before the Nuremberg Military Tribunals under Control Council Law No. 10", Vol. 2, pp. 181-182. Washington, D.C.: U.S. Government Printing Office, 1949.]

acquiring design knowledge of the metering product. Having knowledge of the design, individuals are aware of product behavior and therefore able to detect product anomalies, if any, during all ANSI testing. Finally, the smart meters that West Penn is installing are Underwriters Laboratories ("UL") certified, which mean personnel have performed testing to confirm compliance to UL 2735." (Rebuttal Testimony, Exhibit-ALJ-5, p. 12, lines 19-23; p. 13, lines 1-2.) [Emphasis added.] The one highlighted statement proves Michael Jennings' point: there is no continued monitoring for adherence to FCC limits as products age or weather. Mr. Ahr has proven nothing.

K. Violation of 52 Pa. Code § 57.28 (a)(1)

> "(1) An electric utility shall use reasonable effort to properly warn and **protect the public from danger**, and **shall exercise reasonable care to reduce the hazards** to which employees, **customers**, the public and others may be subjected to by reason of its provision of electric utility service and its **associated equipment** and facilities."[16] [Emphasis added.]

1. The absence of continued monitoring does not protect the public from danger as West Penn Power does not exercise this reasonable care to reduce hazards for their customers' safety. (See J. above.)

2. West Penn Power has not provided to date any research they have conducted on the "smart" meters to Michael Jennings. By not conducting their own research, they are not using reasonable effort to protect the public from danger or hazards. Instead, they rely on outdated FCC guidelines.

3. Even if testimony were credible that RF, such as those emitted by West Penn Power's "smart" meters can or did cause suspected harmful effects on the health of certain customers, West Penn Power's only solution for customers is a "smart" meter as "…Act 129 requires the installation of smart meters at every service location served by West Penn, **without exception for any reason**." (See Complainant's Exhibit A, Mr. Ahr's answer to Interrogatory Set 1, No. 14.) This is a blatant violation of § 57.28 as an electric utility should use reasonable effort to protect their customers. Michael Jennings and his family are customers and are not being protected from danger or hazards associated with West Penn Power's equipment.

4. Evidently West Penn Power is required to deploy smart meters to disabled customers even if such deployment would have an unsuspected harmful effect on their health and a violation of West Penn Power's duties under 66 Pa.C.S. § 1501, as Mr. Ahr replied, again, that "Act 129 requires the installation of smart meters at every service location…***without exception for any reason***." (See Complainant's Exhibit A, Mr. Ahr's Answer to Interrogatory Set 1, No. 15.) Another blatant violation of § 57.28.

[16] 52 Pa. Code §57.28. Electric safety standards.
http://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/052/chapter57/s57.28.html

5. West Penn Power has not inquired as to the health of any of their customers after the deployment of a "smart" meter on their homes as Mr. Ahr confirmed this in his answer to Interrogatory Set I, No. 22 (See Complainant's Exhibit A), even with the knowledge of complainants who have filed harm formal complaints (See Appendix B.). Mr. Ahr's used his pat answer, "Act 129 requires the installation of smart meters at every service location…***without exception for any reason***." This is not responsible utility customer protection.

6. The integrity of FirstEnergy, West Penn Power, and the PA PUC is tainted. (See Section T. No Integrity.)

L. Sage Report Findings

Sage Associates, Inc., Environmental Consultants, "…are in the business of investigating, avoiding, mitigating, and resolving construction troubles."[17] This group has prepared a report, *Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters* (See Appendix I.) "This Report has been prepared to document radiofrequency radiation (RF) levels associated with wireless smart meters in various scenarios depicting common ways in which they are installed and operated."[18] (See Appendix K., Section - Summary of Findings)

Findings from the Sage Report:

1. Consumers may now face excessively high RF exposures in their homes from smart meters on a 24-hour basis. (See Appendix K., Section - Summary of Findings)

2. People who are afforded special protection under the federal Americans with Disabilities Act are not sufficiently acknowledged nor protected. People who have medical conditions rendering them vulnerable to health risks at lower levels than FCC RF limits. (See Appendix K., Section - Summary of Findings)

3. Safety standards for peak exposure limits to radiofrequency have not been developed to take into account the particular sensitivity of the eyes, testes and other ball shaped organs. (See Appendix K., Section - Summary of Findings)

4. In summary, no positive assertion of safety can be made by the FCC, nor relied upon by the CPUC, with respect to pulsed RF when exposures are chronic and occur in the general population. (See Appendix K., Section - Summary of Findings)

[17] Sage Associates, Inc., https://www.sage-associates.com
[18] Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters. (2011, January 11). Retrieved from http://sagereports.com/smart-meter-rf/docs/Smart-Meter_Report.B-Tables.pdf.

5. Indiscriminate exposure to environmentally ubiquitous pulsed RF from the rollout of millions of new RF sources (smart meters) will mean far greater general population exposures, and potential health consequences. (See Appendix K., Section - Summary of Findings)

6. RF levels from the various scenarios depicting normal installation and operation, and possible FCC violations have been determined based on both time-averaged and peak limits (Tables 1-14) (See Appendix K., Section - Summary of Findings)

7. Tables which present data, possible conditions of violation of the FCC public safety limits, and comparisons to health studies reporting adverse health impacts are summarized (Tables 18-33) (See Appendix K, Section - Summary of Findings)

8. Every family home in the country, and every school classroom – every building with an electric meter – is to have a new wireless meter – and thus subject to unpredictable levels of RF every day. (Framing Questions)

9. Violations of FCC safety limits for uncontrolled public access are identified at distances within 6" of the meter. (See Appendix K., Section - Conclusions)

10. The FCC's Grants of Authorization and other certification procedures do not ensure adequate safety to safeguard people under Department of Justice protection under the Americans with Disabilities Act. (See Appendix K., Section - Conclusions)

M. Negative Studies Do Not Prove Biological Safety – Science Has Already Proven Adverse Biological (Health) Effects

The old adage rings true, "you can't un-ring a bell." Brian Stein, Radiation Research Trust Chair, confirms studies that have no results of biological effects are just that and stated even further these studies are "confusing." (See Appendix L.) Dr. Stein also confirmed studies with no results of biological effects do **NOT** negate studies with positive results of biological effects. Dr. Stein also stated the studies with positive results remain in the journals and are not removed and are not negated.

Science has already established adverse health effects from RF/EMF emissions which include neurological, cardiovascular, DNA (See Appendices C, D, I, and pages 7-8.) and cancer (See Appendix O).

Over the last 20 years, a robust body of established, **independent** science shows significant adverse biological effects from exposure to EMF/RF microwave radiation, including clear evidence of cancer, neurological and cognitive harm, heart abnormalities, reproductive effects among other adverse health effects. Children, pregnant women, the elderly, individuals with implanted medical devices and those with cardiac or neurological problems are more susceptible to the effects of wireless radiation. (See Section Q. Bias and Prejudicial Actions Against A Pro Se Complainant, 13. Exhibits were not exempt, Exhibit YY.)

Exhibit YY was wrongfully expunged and this exact exhibit was admitted into evidence in Edward Lucey's Formal Complaint Docket No. C-2018-3003679.)

There is a plethora of studies that echo electromagnetic waves exacerbate central nervous system disorders, cancer, and much more. More studies can be found at these websites, which are only five of many:

- bioinitiative.org – 4000+ Studies
- EMF-Portal.org – 28,000+ Studies
- justproveit.net – 1168 Studies
- powerwatch.org.uk – 1659 Studies
- https://www.ncbi.nlm.nih.gov/pubmed/ - Many Studies
- https://www.5gcrisis.com/scientific-studies

If no studies have been conducted on "smart" meters, as West Penn Power would have us all believe, then safety, or the absence of safety, has not been proven. The absence of harm in some studies does not mean safety. Safety, in West Penn Power's scenario, is yet to be determined either way.

N. Mr. Ahr's Rebuttal Testimony and His Opinions Should Be Given No Weight in Michael Jennings' Case

Michael Jennings requests ALJ Watson to give no weight to Mr. John Ahr, his Rebuttal Testimony (Exhibit-ALJ-5), and his opinions for the reasons enumerated in this section.

1. Mr. Ahr does not address Biological Safety - Safety has many facets and adverse biological effects are definitely a part of the safety equation. Michael Jennings objects to Mr. Ahr as his testimony is totally irrelevant to his case as nowhere in his testimony does he claim to be a medical professional in any capacity, nor does he list any expertise or training in safety. Mr. Ahr did not provide any qualifications to provide an expert opinion concerning biological/medical safety. Mr. Ahr is not a neurologist, an epileptologist, a biologist, nor a medical doctor of any kind and is not qualified to diagnose or treat patients. Furthermore, Mr. Ahr testified on the record with the PUC (in the telephonic hearing of *Kim Martin v. Met-Ed*[19], January 10, 2020, PUC offices closed for transcript viewing) that he has no training in biological safety. Mr. Ahr is only able to speak about his employment role at West Penn Power regarding the development and implementation of the PUC's "Smart Meter Deployment Plan" because he has no qualifications in human health.

Mr. Ahr's Rebuttal Testimony (See Exhibit-ALJ-5) does not address biological safety in terms of the RF emissions from the "smart" meters. Mr. Ahr's rebuttal testimony speaks to technical safety; adherence to PA PUC regulations; and following regulations set by ANSI, Underwriter Laboratories, and the FCC. In his Rebuttal Testimony, Mr. Ahr says the purpose of

[19] PA PUC Docket No. C-2017-2631482, *Kim Martin v. Met-Ed,* PUC offices closed for transcript viewing.

his testimony is to, in part, "…to address the overall safety of West Penn's smart meters." (Exhibit-ALJ-5 – p. 4, lines 1-2.) Overall safety should include biological safety, free of adverse biological effects, but this was **NOT** addressed anywhere in Mr. Ahr's Rebuttal Testimony (Exhibit-ALJ-5).

Mr. Ahr speaks of standards, but again, these are performance and technical in nature. Standards do not address biological harm such as heart palpitations, headaches, fatigue, sleep disturbances, difficulty concentrating, memory impairment, dizziness, nausea, seizures, etc. Mr. Ahr did not present studies of any nature to show there would be no biological harm, such as listed here, and therefore did not contend with biological safety.

2. Relying on Marketing Material - Mr. Ahr and West Penn Power also rely on marketing materials from the "smart" meter industry itself, the manufacturer, Itron® (Answer to Interrogatory Set I, No. 41, Attachment A). The specification sheet, page 4, states,

> "While Itron strives to make the content of its marketing materials as timely and accurate as possible, **Itron makes no claims, promises, or guarantees about the accuracy, completeness, or adequacy of, and expressly disclaims liability for errors or omissions in, such materials.** No warranty of any kind, implied, expressed, or statutory, including but not limited to the warranties of non-infringement of third party rights, title, merchantability, and fitness for a particular purpose, is given with respect to the content of these marketing materials. ITRON is a registered trademark of Itron, Inc.© Copyright 2016 Itron. All rights reserved. 100808SP-10 2/16"[20] [Emphasis added.]

Marketing materials do not constitute research of any kind. There are no claims of accuracy, completeness, or adequacy of the information from Itron®. Are there any research studies conducted by Itron® proving there is no biological harm, or in other words, biological safety? Why did Mr. Ahr not provide these studies if they exist? It is because they do not exist. The Itron® Marketing Materials are therefore inaccurate, incomplete and inadequate when making a determination of biological safety or of medical safety.

Michael Jennings presented numerous published studies during his hearing and in this brief, some of which were peer-reviewed, clearly showing biological harm (**wrongfully expunged during the hearing**); has presented numerous "smart" meter harm formal complaints (See Appendix B.); has presented evidence a long-time PUC expert has proven adverse biological harm (See pages 4-5); and has presented even more research in Appendix I proving adverse biological effects (human harm) in the form of neurological effects. All of Michael Jennings' research should have been admitted into the record, peer-reviewed or not, as Counselor Giesler explained in West Penn Power Company's Answer to the Motion in Limine of Michael T. Jennings to Exclude Respondent's Expert Exhibits and Testimonies:

> "Complainant points to no requirement under the rules of evidence applicable to hearsay, the Commission's regulations and Pennsylvania law, that requires a document

[20] Itron OpenWay® Centron® Meter Specifications, Jennings Interrogatory Set 1, No. 41, Attachment A, p. 4.

> been demonstrated to be a 'peer reviewed study' in order to overcome the rule against hearsay. **Indeed, no such requirement exists**."[21] [Emphasis added.]

Some of the studies Michael Jennings presented were not peer-reviewed, but were from IEEE, industry itself. Some sort of biased rule was used during Michael Jennings hearing to prevent him from entering any of his research studies, peer-reviewed or not, into the record, even when "no such requirement exists." Michael Jennings exhibits were **wrongfully expunged from the record, which was** a **prejudicial action against a pro se complainant.**

3. No Personal Testing or Research to Substantiate His Claims – Where is Mr. Ahr's report on his findings? Where are his calculations? Why did Mr. Ahr not come to the Jennings' property to assess the situation? Did Mr. Ahr consider the cumulative effect of the technology already affecting the Jennings family's health and well-being in conjunction with the emissions of a "smart" meter? Where are the studies Mr. Ahr has conducted? Where are the studies from anyone to substantiate Mr. Ahr's claim this technology is biologicall safe and there are no adverse biological effects?

Mr. Ahr did not address the following exposures already in existence that are in close proximity to Michael Jennings' property in making his decision the "smart" meter is biologically safe for Michael Jennings' family:

- The number of cell towers surrounding the property?
- The number antennas?
- The number of solar systems in Michael Jennings' neighborhood?
- Neighbor's WiFi networks?
- "Smart" meters on neighbors' homes?

Mr. Ahr believes the "smart" meters are safe because he is deferring to the 30+ years old FCC guidelines and a biased, industry generated deployment plan, not from any investigation, research, calculations he has done personally, or any research West Penn Power has performed. Mr. Ahr provided no research at all – peer-reviewed or not.

4. Mr. Ahr relies on outdated FCC safety guidelines – NOT research - Mr. Ahr relies heavily on 30+ year old FCC guidelines, which are not safety limits. These guidelines are not law. The FCC guidelines came out before the dawn of the cell phone and have not been modified in over 30 years. There has been no research supporting safety since. The FCC guidelines do not take into account 24/7/365 exposure to RF/EMF or cumulative exposure from multiple devices and infrastructure, but only short-term exposure of 30 minutes of heating effects on the body. Where are the studies the FCC has conducted to prove the biological safety of "smart" meters?

[21] PUC Docket No. C-2018-3006031 *Michael T. Jennings v. West Penn Power Company,* http://www.puc.state.pa.us/pcdocs/1671078.pdf, p. 9.

There are none. Where is the proof of safety? There is no proof. The FCC has no official health division or expertise in public health. The FCC is not a medical facility, nor do they conduct biological research.

5. Compensated Witness, Conflict of Interest, and Confirmation Bias - Michael Jennings does not know if Mr. Ahr is paid for his testimony as an expert witness above and beyond his salary, but he is an employee of West Penn Power/FirstEnergy. Mr. Ahr has testified in numerous cases on behalf of West Penn Power, Met-Ed, and other utilities. Mr. Ahr's opinion is always the same in these cases. Mr. Ahr does not have Michael Jennings' family's best interest at heart as he is not bound to the American Medical Association's Medical Code of Ethics.[22] Mr. Ahr is an employee and an expert witness for West Penn Power and has industry's best interest as his mission. Mr. Ahr is biased in favor of West Penn Power. This is a glaring conflict of interest and a reason for confirmation bias to occur.

Confirmation bias is defined as "filtering information to suit a preference and reject the rest."[23] Cognitive bias is a "common tendency of filtering input through one's own likes, dislikes, and experiences to acquire, retain, and process information."[24] Mr. Ahr has filtered information concerning the "smart" meter's safety through the lens of his employer, West Penn Power/FirstEnergy, and the "Smart Meter Deployment Plan" document.

6. Mr. Ahr does not address fires or surges - Do a word search on Mr. Ahr's Rebuttal Testimony (See Exhibit-ALJ-5.) and you will not find the words surges, fire, or fires. Mr. Ahr did not address Michael Jennings' testimony that "smart" meters are prone to surges and fires. The PUC is hiding information on surges from customers with the lame excuse, "Please note that this search returns complaints filed on or before February 15, 2018. This is a temporary issue that we are aware of and are in the process of correcting." See Appendix N for a Complaint search which clearly shows many surges, with damage being caused, were reported in February 2017. This information is being intentionally withheld from customers and complainants. The information within Appendix N is proof there are surges and damage being caused during a time when the "smart" meters were being deployed. This could be a deadly situation for McKenzie, especially due to his disabilities, if a fire were to start from a surge, as he may not be able to escape. All of Michael Jennings' exhibits showing pictures of explosions and fires and news articles of such were wrongfully expunged.

O. Act 129 of 2008 is NOT a Mandate

Michael Jennings has done word searches on Act 129 of 2008 and the PUC's Implementation Order of June 2009 for the words "mandate" and "required" and there is no mention of either word in either document in connection with deployment of "smart" meters.

[22] AMA Principles of Medical Ethics. (n.d.). Retrieved from https://www.ama-assn.org/about/publications-newsletters/ama-principles-medical-ethics

[23] What is CONFIRMATION BIAS? definition of CONFIRMATION BIAS (Black's Law Dictionary). (2012, October 18). Retrieved August 03, 2020, from https://thelawdictionary.org/confirmation-bias/

[24] What is COGNITIVE BIAS? definition of COGNITIVE BIAS (Black's Law Dictionary). (2012, October 18). Retrieved August 03, 2020, from https://thelawdictionary.org/cognitive-bias/

West Penn Power is in violation of Act 129 of 2008 and the PUC's interpretation of Act 129 because there is **NO MANDATE** in either document that states there is a requirement or a mandate to deploy "smart" meters.

The legislative record for House Bill 2200 that became Act 129 of 2008 supports Michael Jennings' assertions that there was no mandatory intent, contrary to the PUC's Implementation Order of June 2009. An excerpt from Appendix J, page 6:

> "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." [Emphasis added.]

See Appendix J for complete details on legislative intent.

Mr. John Ahr confirmed in the telephonic hearing of *Larry R. and Ellen M. Kramer v. Met-Ed* that the word mandate is not mentioned in Act 129 of 2008.[25] Further evidence that Act 129 of 2008 is not a mandate comes from the PA PUC's Public Meeting held April 15, 2010 on page 10 of this document:

> **"**The 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."[26] [Emphasis added.]

Please see Appendix J for the full details on depreciation, Act 129 of 2008 is not a mandate, the PUC's misinterpretation of Act 129 of 2008, and the PA PUC's ability to change its implementation order. Michael Jennings concurs with Mr. Zimmerman's document in toto, Appendix J.

Former state Rep. Thomas Yewcic, who held office from 1992-2008 and participated in the passage of HB2200 (Act 129 of 2008) into law, testified in his wife's formal complaint telephonic hearing (*Sherry Yewcic v. Pennsylvania Electric Company*[27], July 22, 2020, PUC offices

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[25] PA PUC Docket No. C-2017-2630621, *Larry R. and Ellen M. Kramer v. Met-Ed,* telephonic hearing, June 29, 2020, due to COVID-19, no transcript viewing.
[26] PA PUC Docket No. M-2009-2123950, FirstEnergy (MetEd, Penelec, and Penn Power) – Petitions for approval of their Smart Meter Technology Procurement and Installation Plans.
[27] PA PUC Docket No. C-2018-3001276, *Sherry Yewcic v. Pennsylvania Electric Company*, telephonic hearing July 22, 2020, due to COVID-19, no transcript viewing.

closed for transcript viewing), before the PUC that Act 129 of 2008 was never mandated, as it was passed with non-mandatory intent. Former state Rep. Yewcic also stated Act 129 would have gone through the courts to become a mandate, and this never happened.

According to Subchapter O. Advanced Meter Deployment issued under the Public Utility Code, 66 Pa. C.S. § § 501 and 2807(a),

> "…**This subchapter does not require the public to participate in an advanced metering program.**
>
> **Authority**
>
> The provisions of this Subchapter O issued under the Public Utility Code, 66 Pa.C.S. § § 501 and 2807(a) and (d), unless otherwise noted.
>
> **Source**
>
> The provisions of this Subchapter O adopted December 24, 1998, **effective December 26, 1998, 28 Pa.B. 6302, unless otherwise noted.**"[28] [Emphasis added.]

The provisions of Subchapter O are still in effect as it is not otherwise noted. The public is clearly not required to participate, thus, proving Act 129 of 2008 is only opt-in, except in new construction.

P. West Penn Power and the PA PUC Must Comply and Accommodate

Mr. Ahr addresses an incorrect issue in his Rebuttal Testimony (See Exhibit-ALJ-5): opt-out. Michael Jennings, Complainant, has not asked for an opt-out. Michael Jennings has been asking for an ADA accommodation since day one. Mr. Ahr admitted, under oath, (in the telephonic hearing of *Larry R. and Ellen M. Kramer v. Met-Ed*[29], June 29, 2020, PUC offices closed for transcript viewing) that no accommodations have been provided to people who requested such under 66 Pa. C.S.A. Public Utilities § 1501. Further, discussion of opt-out is irrelevant as Act 129 of 2008 is an opt-in law except in new construction.

If there was accommodation, Michael Jennings would not have had to continue on in this proceeding for "two long years." West Penn Power and the PA PUC have ignored his request for accommodation under State and Federal laws. Counsel for West Penn Power has stated West Penn Power does accommodate. If that were true, Michael Jennings would not have been in the formal complaint process for "two long years."

Michael Jennings is not asking for an opt-out, rather he is **asking for accommodation and compliance**. Even though the PUC does not have jurisdiction to interpret ADA claims, as this is the province of federal courts, the PUC and West Penn Power ***MUST*** comply with federal

[28] Subchapter O. Advanced Meter Deployment, Title 52, Chapter 57, Subchapter O, http://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/052/chapter57/subchapOtoc.html
[29] PA PUC Docket No. C-2017-2630621, *Larry R. and Ellen M. Kramer v. Met-Ed.*

legislation: Americans With Disabilities Amendments Act, 42 U.S. Code § 12101 *et seq*.; the Rehabilitation Act of 1973 as Amended, 29 U.S.C. § 701 *et seq*.; and the Fair Housing Amendments Act, 42 U.S.C. § 3601 *et seq*. **(Public Record per 52 Pa. Code 5.406(a)(2))**

The PUC most definitely has jurisdiction to comply, to decide, and to enforce 66 Pa. C.S.A. Public Utilities §1501 and §1502, which both allow for accommodation, and without discrimination.

Each member of Michael Jennings' family has medical diagnoses which are covered by the ADA. No need for the PA PUC to interpret as this has already been done:

> **"28 CFR § 35.108 - Definition of "disability."**
>
> **(a)**
> **(1)** ***Disability*** means, with respect to an individual:
> **(i)** A physical or mental impairment that substantially limits one or more of the major life activities of such individual;
>
> **(b)**
> **(1)** ***Physical or mental impairment*** means:
> **(i)** Any physiological disorder or condition, cosmetic disfigurement, or anatomical loss affecting one or more body systems, such as: **neurological**, musculoskeletal, special sense organs, respiratory (including speech organs), cardiovascular, reproductive, digestive, genitourinary, **immune**, circulatory, hemic, lymphatic, skin, and **endocrine**; or
> **(ii)** Any mental or psychological disorder such as **intellectual disability**, organic brain syndrome, emotional or mental illness, and specific learning disability.
>
> **(2)** ***Physical or mental impairment*** includes, **but is not limited to**, contagious and noncontagious diseases and conditions such as the following: orthopedic, visual, speech, and hearing impairments, and cerebral palsy, **epilepsy**, muscular dystrophy, **multiple sclerosis**, **cancer**, heart disease, diabetes, **intellectual disability**, emotional illness, dyslexia and other specific learning disabilities, Attention Deficit Hyperactivity Disorder, Human Immunodeficiency Virus infection (whether symptomatic or asymptomatic), tuberculosis, drug addiction, and alcoholism."[30]

A public utility, as defined by the Pennsylvania Public Utility Code and approved by the Pennsylvania Public Utility Commission 66 Pa.C.S. § 102 is:

> "(1) Any person or corporation now or hereafter owning or operating in this Commonwealth equipment or facilities for:
> (i) Producing, generating, transmitting, distributing, or Furnishing natural or artificial gas, electricity, or steam for the production of light, heat, or power to or for the public for compensation."[31]

[30] 28 CFR § 35.108 – "Definition of Disability," retrieved from https://www.law.cornell.edu/cfr/text/28/35.108
[31] 66 Pa.C.S. § 102.

West Penn Power is a public utility providing electricity to approximately 720,000 customers in Pennsylvania.[32] West Penn Power measures its customers' electricity usage through meters placed in or on customers' homes. West Penn Power, is considered a public entity and is subject to anti-discrimination provisions of Title II of the ADA. West Penn Power is a public accommodation, which "…are businesses that provide goods and services for the public."[33] Mr. Ahr agrees with this description of West Penn Power (See Complainant's Exhibit A, Interrogatory Set II, No. 23).

When asked if West Penn Power has requested from the PUC a reasonable accommodation from PA Act 129 "requirements" and to provide the outcome of the offer and the accommodation that was offered, Mr. Ahr replied, "N/A." Why is this not applicable? It is not applicable because West Penn Power did not offer anything other than a "smart" meter (See Complainant's Exhibit A, Set I, No. 32) and West Penn Power is not accommodating. Mr. Ahr replied with his standby answer, "West Penn Power is obligated to comply with Act 129, which requires the installation of smart meters at every service location…***without exception for any reason***." (See Complainant's Exhibit A, Answer to Interrogatory Set I, No. 21.) Accommodation would be a reason, therefore, West Penn Power did not accommodate.

Title III of the ADA prohibits discrimination against persons with disabilities by places of accommodation. *Spector v. Norwegian Cruise Line Ltd*., 545 U.S. 119, 128 (2005). A public entity denies the benefits of its services to a disabled person when it provides services that are not equal to services provided to non-disabled persons. 28 C.F.R. § 35.130(b)(1)(ii). Title III of the ADA prohibits discrimination against the disabled in the full and equal enjoyment of public accommodations:

> "No individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation by any person who owns, leases (or leases to), or operates a place of public accommodation."[34]

Under Section 12184(a)(2) of the ADA, discrimination includes the failure of an entity to "make reasonable modifications consistent with those required under section 12182(b)(2)(A)(ii) of this title." Practices that have a discriminatory effect against the disabled may violate the ADA even in the absence of intentional discrimination. *Oxford House, Inc. v. Cherry Hill*, 799 F. Supp, 450, 461 (D.N.J. 1992). By virtue of its role as a utility, West Penn Power is considered a public entity and is subject to the anti-discrimination provisions of Title II of the ADA. The Commission is also considered public entity as it fits the definition of "[a]ny department, agency, special purpose district, or other instrumentality of a State or local government"[35] and is also subject to Title II of the ADA.

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[32] FirstEnergy/West Penn Power, https://www.firstenergycorp.com/west_penn_power.html
[33] Public Accommodations and Commercial Facilities (Title III), https://www.ada.gov/reachingout/intro2.htm
[34] 42 U.S.C. § 12182(a), https://www.ada.gov/pubs/adastatute08.htm#12182.
[35] 42 U.S.C.A § 12131, https://uscode.house.gov/view.xhtml?req=granuleid:USC-prelim-title42-section12131&num=0&edition=prelim.

Further, Section 504 of the Rehabilitation Act provides that:

> "No otherwise qualified individual with a disability…shall, solely by reason of her or his disability, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."[36]

The Rehabilitation Act extends relief to "any person aggrieved" by discrimination in violation thereof.[37] Also, under Section 504, companies receiving federal funds must provide "the opportunity for handicapped individuals to participate in and benefit from programs receiving federal assistance." *Alexander v. Choate*, 469 U.S. 287, 304 (1985).

Mr. Ahr answered "no" to Michael Jennings Interrogatory Set II, No. 17 which queried, "Does WPP receive any funds, grants, loans or other financing form the federal or state government authorities to cover or otherwise offset the costs incident to smart meter deployment in its territory?" However, Michael Jennings' found evidence of such federal grant funding in a governmental report from the Energy Department. The report shows FirstEnergy did indeed receive a federal grant. FirstEnergy received such assistance in the amount of $57,470,137.00 in a federal grant award from Recovery Act for Smart Grid Investment. It is stated that the grant funding **"…will also benefit customers in Pennsylvania**."[38] (See Appendix F, page 8, at OH, FirstEnergy.)

The Fair Housing Amendments Act out-laws discrimination "in the terms, conditions, or privileges of sale or rental of a dwelling, or in the provision of services or facilities in connection with such dwelling, because of a handicap" of an individual. 42 U.S.C. § 3604(f)(2). Electricity, water, and heat are among the services that are essential to a safe living environment. *Pogue v. HACSA*, No. 6:27-cv-01731-AA, 2018 U.S. Dist. LEXIS 55764, at *7-8 (D. Or. Apr. 2, 2018) (citing 24 C.F.R. §§ 982.401(e)(1), (f)(1)(i)). "By its express terms, Section 3604 applies to 'the provision of services or facilities' to a dwelling, such as sewer service." *Community Services Inc. v. Wind Gap Mun. Auth*., 421 F.3d 170,184 (3d Cir. 2005).

Further, under 42 U.S.C. § 3604(f)(3)(B), discrimination includes "a refusal to make reasonable accommodations in rules, policies, practices, or services, when such accommodations may be necessary to afford such person equal opportunity to enjoy a dwelling." Michael Jennings' family are persons with handicaps as defined by the Fair Housing Amendments Act. Here, West Penn Power and the PA PUC are engaging in discrimination on the basis of disability in the provisions of a service to housing, and in its refusal to make reasonable accommodation per Michael Jennings' request.

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[36] 29 U.S.C. § 794, https://www.dol.gov/agencies/oasam/centers-offices/civil-rights-center/statutes/section-504-rehabilitation-act-of-1973.
[37] 29 U.S.C. § 794(a)(a)(2)., https://www.dol.gov/agencies/oasam/centers-offices/civil-rights-center/statutes/section-504-rehabilitation-act-of-1973.
[38] Recovery Act Selections for Smart Grid Investment Grant Awards – By State, https://www.energy.gov/sites/prod/files/SGIG%20Awards%20%20By%20State%202011%2011%2015.pdf,
Full report, https://www.energy.gov/oe/information-center/recovery-act-smart-grid-investment-grant-sgig-program

The PUC most definitely has jurisdiction to comply, to decide, and to enforce 66 Pa. C.S.A. Public Utilities §1501 and §1502, which both allow for accommodation, and without discrimination.

West Penn Power and the PA PUC are arguing the wrong issue. In McKenzie's case, the Social Security Administration and Westmoreland County have already deemed him disabled which is clearly noted in wrongfully expunged Exhibit B, page #8 and page #12 (expunged because it was not a complete document. See Appendix M for a complete document.) No need to interpret, it has already been done. **The key issue is *compliance*.**

West Penn Power and the PA Public Utility Commission are ***failing to comply*** with the ADA. West Penn Power and the Commission should adhere, comply, and accommodate as per 66 Pa. C.S.A. Public Utilities § 1501, Character of service and facilities, which states:

> **"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."[39] [Emphasis added.]

A paraphrased version of § 1501, "Every public utility…shall make **all** such…substitutions…as shall be necessary or proper **for the accommodation**…and safety of its patrons…"

Mr. Ahr, confirmed the only option West Penn Power offered to Michael Jennings was a "smart" meter. (See Complainant's Exhibit A, Set I, No. 32.) Mr. Ahr also stated no accommodations have been provided to people who requested such under 66 Pa. C.S.A. Public Utilities § 1501, see page 19 for reference. Attorney Tiffany Tran confirmed this information on June 10, 2020 in Commonwealth Court online oral arguments (see page 26 for the reference.)

West Penn Power and the Commission should also adhere, comply, and accommodate as per 66 Pa. C.S.A. Public Utilities § 1502: Discrimination in service, which states:

> "**No public utility shall, as to service, make or grant any unreasonable preference or advantage to any person,** corporation, or municipal corporation, or **subject any person**, corporation, or municipal corporation **to any unreasonable prejudice or disadvantage. No public utility shall establish or maintain any unreasonable difference as to service, either as between localities or as between classes of service**, but this section does not prohibit the establishment of reasonable classifications of service."[40]

Mr. Ahr said repeatedly throughout his interrogatory answers, "…Act 129 requires the installation of smart meters at every service location served by West Penn, without exception for any reason." Mr. Ahr and West Penn Power admit they are not accommodating for disabilities, as accommodation would be a reason, but clearly accommodate when it suits their

[39] 66, Public Utility Code, Chapter 15. Service Facilities, § 1501, Character of service and facilities, https://www.legis.state.pa.us/cfdocs/legis/LI/consCheck.cfm?txtType=HTM&ttl=66&div=0&chpt=15&sctn=1&subsctn=0
[40] 66, Public Utility Code, Chapter 15. Service Facilities, § 1502, Discrimination of service, https://www.legis.state.pa.us/cfdocs/legis/LI/consCheck.cfm?txtType=HTM&ttl=66&div=0&chpt=15&sctn=2&subsctn=0

own biased purposes.

Mr. Ahr identifies in his Rebuttal Testimony (See Exhibit-ALJ-5, page 4, lines 8-9 and page 10, lines 14-29) two situations in which West Penn Power is not forcing "smart" meters on their customers: areas with less than 100,000 customers and remote areas which consist of 1.5% of the meters that require alternative communication solutions. This is an admission that West Penn Power is not deploying "smart" meters for these two conditions.

Michael Jennings and his family are being discriminated against as there are people living in areas where small power companies who are serving less than 100,000 customers do not have to have a "smart" meter deployed on their homes. Those who are not required to have a "smart" meter deployed are given a preference or an advantage in this situation, thereby Michael Jennings' family is subjected to unreasonable prejudice and disadvantage per § 1502. Also take note, just because a power company has more than 100,000 customers still does not mandate "smart" meters to all customers according to Act 129 of 2008, but is an erroneous part of the PUC's Implementation Order of June 2009. (See Section O. Act 129 of 2008 is NOT a Mandate.)

Therefore, because there are other customers who are not required or mandated to have a "smart" meter, Michael Jennings wishes to avail himself to the same provision.

Q. Bias and Prejudicial Actions Against A Pro Se Complainant

1. General Comments - Bias and prejudicial actions were evident even before Michael Jennings filed his formal complaint. Michael Jennings heard that no one has won their case before the PUC in the "smart" meter cases. **This is prejudicial against all pro se complainants in the formal complaint proceedings.**

The PUC cleverly hides smart meter cases at its website as by labeling cases as "Miscellaneous/Other Dispute(s) on Hearing Notices and in the descriptions of cases on the Hearing Calendar each week." This is deceptive. The PUC also has made it much more difficult and time-consuming to find smart meter complaint cases since, according to the PUC website, there has been a systems problem with the Search for Consumer Complaints page since February 15, 2018 and as a result, there is an issue with complaints filed on or before February, 15 2018. The page also states that "this is a temporary issue that we are aware of and are in the process of correcting."[41] (See Appendix N.) The PUC should have had this "temporary issue" resolved within the past two years as we live in the age of technology and the PUC surely has a staff of computer techs who could correct this in a matter of minutes.

And, coincidentally, the PUC refused to provide the **number** of smart meter complaints per a Right-To-Know request around this same time for a smart meter complainant by saying

[41] Search for Consumer Complaints - Electric Utilities, http://www.puc.state.pa.us/consumer_info/electricity/electric_complaints_search.aspx

the PUC does not keep a record of that information. However, just this year, the PUC was asked by a Representative of another smart meter complainant to provide a list of all the smart meter complaints, and came up with a listing of around 500 complaints. **This is prejudicial against all pro se complainants in the formal complaint proceedings.**

Bias is evident even in the online "About the PUC"[42] publication. (See Appendix G.) Bias can be seen from the very top of the utility organization on down. The court for these formal complaint proceedings is a part of the Public Utility Commission. They serve as judge and jury in these proceedings which is a glaring conflict of interest that leads to unfair proceedings for pro se complainants.

> "The PUC has 12 offices and bureaus reporting to an Executive Director, with its headquarters in Harrisburg. Regional offices are located in Philadelphia, Pittsburgh and Scranton. **The regional offices serve as administrative coordinating points for enforcement officers and administrative law judges**."[43]

The PA PUC is funded by industry itself. This relationship is a blatant conflict of Interest:

> "The PUC is **funded by assessment of regulated public utilities.** Subject to budget approval, the **PUC may assess utilities up to three-tenths of one percent of gross intrastate revenue** to cover the cost of regulation. **All assessments are paid into the General Fund of the State Treasury through the Department of Revenue for use solely by the Commission.**"[44] [Emphasis added.]

This blatant conflict of interest started early. Notice the change in name. Public service was abolished.

> "The **Public Utility Commission** was created by the Pennsylvania Legislative Act of March 31, 1937 (and the Public Utility Law of May 28, 1937), which **abolished the Public Service Commission.**"[45] [Emphasis added.]

a. Balances the needs of consumers and utilities? No! There is ***nothing*** balanced about what the Public Utility Commission provides.[46] The PUC caters to the industry it regulates and balances the scales in industry's favor to the detriment consumers and prejudice against pro se complainants. FirstEnergy touts in its 2018 Annual Progress Report Smart Meter Technology Procurement and Installation Plan on file at the PA PUC website (per 52 Pa. Code 5.406(a)(1)):

> "…there have been approximately 5,400 disputed installations since project inception. Thus far, more than 5,000 disputes have been positively resolved in favor of smart meter installation."[47]

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[42] About the PUC, http://www.puc.state.pa.us/General/pdf/About_the_PUC_FS.pdf
[43] Ibid.
[44] Ibid.
[45] Ibid.
[46] Ibid.
[47] *2018 Smart Meter Plan Progress Report Smart Meter Technology Procurement and Installation Plan – MetEd, Penelec, PennPwr WPP,* http://www.puc.pa.gov/pcdocs/1579284.pdf, p. 2.

This is true in part. The disputes have been resolved, but they forgot to mention the odds are stacked against the consumers who have filed the complaints, as is evidenced in the Povacz[48] and McKnight[49] cases, when the Commission reversed the ALJ's decisions. No one has won their case as of yet, per PUC Attorney Tiffany Tran, see section below, "Protects the public interest." This is another telling piece of information which points to bias.

b. Ensures safe utility service? No! The PUC is **NOT** ensuring safe utility service for Michael Jennings' family and many others discussed throughout this brief by ignoring independent research proving harm from RF/EMF emissions from the "smart" meters and also turning a blind eye to doctors' explicit medical directives. The PUC has heard many cases now on harm. (See Appendix B.)

c. Protects the public interest? No!! This is laughable!! Michael Jennings has brought before the PUC an issue of public interest, as have many complainants before him. The PUC has given absolutely no relief to any complainant who has come before them in these proceedings. During the Commonwealth Court's online (due to COVID-19) oral arguments on June 10, 2020 in the consolidated actions of *Maria Povacz, Laura Sunstein Murphy, Cynthia Randall and Paul Albrecht vs. PA PUC*, No. 492 CD 2019, No. 606 CD 2019, No. 607 CD 2019[50], Judge Crompton asked PA PUC Attorney Tiffany Tran if the PA PUC had ever granted relief from the "smart" meters. Attorney Tran uncomfortably and awkwardly responded to the question that the PA PUC had not granted any relief because no complainant in their view had presented evidence to justify any relief.

d. Educates consumers to make independent and informed utility choices? No! Not independent, informed utility choices - only what the PUC dictates or deploys.

e. Fosters new technologies and competitive markets in an environmentally sound manner? No! Environmentally safe would mean people are not being harmed. Michael Jennings is desperately trying to make an educated, independent choice concerning the medical safety for himself and his family, but the PUC and West Penn Power are not allowing him to do so by ignoring doctors' explicit medical directives and by not to comply with 66 Pa. C.S.A. Public Utilities §1501 and § 1502 (both allow for accommodation without discrimination); the Americans With Disabilities Amendments Act, 42 U.S. Code § 12101 *et seq*.; the Rehabilitation Act of 1973 as Amended, 29 U.S.C. § 701 *et seq*.; and the Fair Housing Amendments Act, 42 U.S.C. § 3601 *et seq*. **The Commission does have jurisdiction to comply, to decide, and to enforce 66 Pa.C.S. § 1501 and § 1502, which both allow for accommodation, and without discrimination.**

[48] PUC Docket No. C-2015-2475023, *Povacz v. PECO*, ALJ Darlene Heep
[49] PUC Docket No. C-2017-2621057, *McKnight v. PECO*
[50] Commonwealth Docket Sheet, Docket No. 492 CD 2019, https://ujsportal.pacourts.us/DocketSheets/AppellateCourtReport.ashx?docketNumber=492+CD+2019&dnh=QUsnycrD6b6gIintsvoLUg%3d%3d

2. West Penn Power's Late Filed Objections - Michael Jennings served his interrogatories, set II to West Penn Power on May 8, 2019 and were e-filed on May 10, 2019. Michael Jennings received a copy of West Penn Power's answers to his set II interrogatories via first class mail on June 3, 2019. Michael Jennings noticed that West Penn Power had not provided answers to **thirteen** questions, did not serve Michael Jennings any objections to the interrogatories, nor had they filed either of the documents with the PUC's Secretary's Bureau. Any objections should have been filed within 10-days of service, pursuant to 52 Pa Code § 5.342(e). The deadline for filing objections would have been by May 23, 2019, taking into consideration of 52 Pa Code § 1.56 (5)(b), Date of Service (mailbox rule). Michael Jennings filed a Motion to Compel[51] on June 12, 2019. In its Answer to the Motion to Compel[52], Set II, West Penn Power mistakenly stated, at No. 20,

> "On May 23, 2019, the Company had filed its objections to specific questions contained in Complainant's Set II Discovery Requests."

Also, in West Penn's Answer, footnote number one, page 3, it was stated,

> "On June 13, 2019, Counsel for the Company and Ms. Jennings spoke via telephone. During this conversation, Counsel became aware that the Complainant did not receive the Company's objections to Set II. On June 14, 2019, the Company re-sent a copy of its objections to the Complainant."

Counsel for Respondent was **mistaken** that it "re-sent" the Company's objections Set II to Complainant. On June 17, 2019 Michael Jennings received for the ***first and only time***, West Penn Power's objections. An Interim Order Granting in Part and Denying in Part Complainant's Motion to Compel Discovery Responses was entered on July 3, 2019 which ordered West Penn Power to answer only one interrogatory out of thirteen, number 23.

One of the questions Michael Jennings asked in Set II, No. 2 was:

> "My former address was 905 Country Club Drive, Greensburg, PA in the Country Club Place Development.
> a.) What date smart meter deployed on that home.
> b.) What was the date the first smart meter was deployed in the Country Club Place Development?"

In the late filed objections, mentioned above, West Penn Power stated:

> "This Discovery Request is overly broad, irrelevant, outside the scope of this proceeding, not reasonably calculated to the discovery of admissible evidence, and requests information that could require the

[51] PUC Docket No. C-2018-3006031, *Michael Jennings v. West Penn Power*, Motion to Compel Interrogatories, Set II, http://www.puc.state.pa.us/pcdocs/1623391.pdf
[52] Ibid, http://www.puc.state.pa.us/pcdocs/1624343.pdf

> disclosure of personally identifiable information related to customers who are not part to this proceeding. Furthermore, given that this address is not the subject of the litigation related to this proceeding, it is not expected to lead to the discovery of any evidence admissible in this proceeding."

Michael Jennings' discovery request was direct and not overly broad. It was not irrelevant and not out of the scope of this proceeding; actually, this is the heart of the formal complaint. A couple of dates would most certainly have been admissible as no names were needed, only two dates, so there would be no personally identifiable information which would have been disclosed. The address is pertinent to Michael Jennings' complaint as he and his family lived there for approximately five years and 2017 was the start of his son's refractory seizures. Something had changed at that home while the family was in Florida and it most certainly could have been the deployment of a "smart" meter. It seems suspect that West Penn Power would not answer such a simple question. It is an indication that a "smart" meter had been deployed, that West Penn Power did not want to admit to the possibility that a "smart" meter had caused such harm, and it is also another indication of bias and collusion.

3. Formal Complaint Procedure - The Formal Complaint procedure before the PA PUC does not afford due process to residential customers who are disabled, who are contesting AMI exposure as hazardous to their health; who cannot afford to pay for experts and lawyers to cross examine West Penn Power's hired experts; and, to understand and respond to all the legal processes involved. The legal costs necessitate complainants to represent themselves pro se and forces the complainants to navigate the legal process . Michael Jennings has had to work on his case while caring for McKenzie 24/7/365 without a legal staff to support him. Also, the PUC sets an impossible bar for any complainant to find relief under Section 1501 requiring complainants to prove a conclusive causal connection. The PUC should prove safety.

4. Deferred to FCC - Mr. Ahr deferred to the Federal Communications Commission (FCC), a federal agency in his Rebuttal Testimony (See Exhibit-ALJ-5), page 12, lines 15-16), which made Michael Jennings' case a federal issue in this formal complaint, and by doing so, he invoked the federal Rules of Evidence. This was totally ignored Michael Jennings' hearing.

5. Transcripts - Michael Jennings gave the transcription company a couple of weeks to prepare the hearing transcripts. Michael Jennings made many phone calls and left messages requesting the document. One day it was ready, the next it was not. It took six weeks from the day of the hearing to get a copy of the transcript. Michael Jennings noticed there were obvious omissions from the transcript. Someone had "cleaned" up the transcript before Michael Jennings was allowed to view it. By this time, Michael Jennings did not have time to make corrections to the transcript as the brief deadline was looming. There just wasn't enough time to do both as Michael Jennings does not have a legal staff to help with these matters and he helps with the care of McKenzie 24/7/365. Examples:

- Who is Mrs. Buck? (Tr. page 12, line 18.)

- The ALJ's comment, "Do you think because I was in a good mood yesterday that I would be in a good mood today? I am not!" was not in the transcript. Michael Jennings was pointing out the ALJ set a precedent on July 22, 2020 by allowing former representative Thomas Yewcic to speak in his wife's formal complaint. This comment should have been at page 25, line 8.
- The ALJ went into what Michael Jennings felt was an angry tirade about Susan Jennings not sending him a copy of the Revised Testimony by first class mail. This should have been somewhere in the transcript between pages 166-174, but was taken out of the transcript.
- Counsel for West Penn Power asked, "Why, Mr. Jennings, have you been doing this for two long years?" This question was in Michael Jennings notes, but not in the transcript, and he is not sure of the exact placement of the quote within the transcript.
- Michael Jennings made a statement that was cut from the Transcript at page 224, line 3. The statement should have read, "Those questions -- I'm a little confused on your role. Sometimes you are helpful, the next time you are cross examining me." This statement was removed and the statement at Transcript 224, line 4 was added, "(Multiple people speaking at once.)"
- Tone and demeanor do not come through the written word.

Michael Jennings has every reason to believe that the many delays regarding the contradictory answers he received about the transcript being ready, were the result of collusion between WPP and the PUC to hide conversations/comments, like the above, which he felt were highly inappropriate. Michael Jennings felt confused and misguided many times during his hearing. Michael Jennings was frustrated by the subtle harassment and intimidation.

6. Objection to handling of testimony and exhibits - For the record, Michael Jennings objects to how his testimony and exhibits were handled during the evidentiary hearing. Michael Jennings is pro se. Michael Jennings tried to present the best case he could knowing no pro se complainant nor any complainant represented by an attorney, for that matter, in the "smart" meter formal complaints have been granted relief to date. The stress of the day; not being an attorney to know how to handle objections; the fast paced, rushed nature of the hearings; the emotional side to the proceedings as the pro se tries to protect the health and well-being of his family; and an unfair ratio of 4:1 attorneys/ALJ to pro se were all factors of what transpired. The ALJ's, experts, and attorneys have been a part of these proceedings for decades, and they are well rehearsed. Michael Jennings has never represented his family in any hearing of this sort. He was distinctly at a great disadvantage.

7. Held to Higher Standard - Michael Jennings was held to a higher standard than an expert. Mr. Ahr was allowed to enter an exhibit, which should have been labeled hearsay, it is not written by Mr. Ahr; it is not a research study, peer-reviewed or otherwise; and it is a biased industry document which does not prove biological, medical, or any type safety. Almost all of Michael Jennings' exhibits, which he reviewed and referenced for the purposes of this complaint, were wrongfully expunged because they were labeled hearsay.

8. Internet Links/Documents - Before Dr. Israel was dismissed from the proceedings at the evidentiary hearing, he was allowed to provide **internet links only** to the research he referred to in his rebuttal testimony, he did not provide any abstracts or full articles, and he provided only partial documents. However, one of the main reasons some of Michael Jennings' exhibits were expunged was because they were documents from the internet and were called "hearsay."

Also concerning the matter of hearsay, West Penn Power's Answer to the Motion in Limine of Michael T. Jennings to Exclude Respondent's Expert Exhibits and Testimonies, Counsel stated,

> "As such, both Dr. Davis and Dr. Israel may rely on the identified exhibits as an exception to the hearsay rule **even if the ALJ determines that these exhibits constitute hearsay**…"[53]

This clearly exposes the biased nature of these proceedings. Michael Jennings was not afforded the opportunity of this hearsay rule during his hearing.

9. Charged with providing a preponderance of evidence - The Interim Order Providing for Third Revised Initial Litigation Schedule states,

> "Complainant bears the burden of proof and must demonstrate by a preponderance of the evidence…"[54]

Michael Jennings has been charged by the Pennsylvania Public Utility Commission with providing a preponderance of evidence, and as such, the Michael Jennings is within his rights to present such a preponderance of evidence. Michael Jennings was not allowed to do so in his evidentiary hearing on July 23-24, 2020, which was a prejudicial action against a pro se complainant. If Michael Jennings' complete testimony and exhibits had been entered per the information in this section, Michael Jennings would have provided 254:0 ratio (includes research references from within the studies provided which also includes published peer-reviewed studies) of published research, some of which were peer-reviewed, in comparison to Mr. Ahr. Michael Jennings' exhibits concluded adverse biological effects from RF/EMF.

Further, the PA PUC has placed a burden on complainants by changing the intent of "preponderance of evidence," which should mean substantial evidence, to conclusive evidence of cause. "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)

Pro se complainants are not scientists, researchers, or financially positioned to take on this impossible endeavor. Each individual is unique and complex. Existing medical conditions of each individual must be taken into consideration and why a treating physician must be

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[53] PUC Docket No. C-2018-3006031, *Michael Jennings v. West Penn Power Company*, West Penn Power Company's Answer to Michael T. Jennings Motion In Limine, http://www.puc.state.pa.us/pcdocs/1671078.pdf.
[54] Ibid., Interim Order Converting In-Person Hearings to Telephonic Hearings.

involved. However, in these PUC "smart" meter formal complaints, both medical conditions and treating physician's explicit medical directives are being totally discounted.

10. Mr. Stewart - Michael Jennings tried to effectively object to the motion to strike part of his testimony which were comments concerning Mr. Mark Stewart's testimony (also in Exhibit O signed by Mr. Stewart) stating his daughter had seizures after a "smart" meter was deployed on his home. Michael Jennings clearly stated the relevance, "…we are drawing a conclusion from – you, know, from Mark Stewart's daughter having seizures…after a smart meter was connected to her home. And we – our son has similar seizures and we are trying to draw a comparison to that." (Tr. p. 242, lines 7-13) The ALJ's response was, "Okay. Well, I am going to grant the motion to strike the testimony beginning at page 37, line 18, through 38, line 19. It is hearsay, and **I fail to see any relevance to this particular case**. Okay." (Tr. p. 242, lines 17-22.) How could the ALJ NOT see the relevance to Michael Jennings' son's seizure situation?? **This was a blatant prejudicial action against a pro se complainant as there was a definite relevance to Michael Jennings' complaint.**

11. Consumer Complaint Guide - The PA PUC Consumer Complaint Guide is clearly not set up for "smart" meter formal complaints, nor does it prepare pro se complainants in these formal complaints for the arduous task set before them while trying to protect themselves and their families. The Hearing Procedure says:

> "**Hearing Procedure**
> During the hearing, you will need to explain why your Formal Complaint should be granted. **The more documents you can bring in support of your case, the better.** These documents could include letters, bills, cancelled checks, receipts, leases and account statements from the utility. These documents are called "Exhibits" and need to be made part of the official record in the case."[55]

12. Formal Complaint Process - The PA PUC formal complaint process is not indicative of justice for pro se complainants. The PA PUC "court" is a pretend court and is only a façade to appear as though the pro se complainants are being served and protected. The PUC court is a self-serving entity which is only in existence to fulfill its own biased purposes. The Commission is not protecting consumers per 66 Pa. C.S. Public Utilities § 1406(f) which is entitled "**Responsible Consumer Protection**." Yes, you can bring all the documents you want, but you will **NOT** be able to use them to present your case because they might incriminate the utility or the PUC. This is the biggest joke on the people the PUC serves, and sadly, the people are paying for this travesty in time and in money, including the extreme mental and physical demands of being pro se while trying to learn and to follow this process! In addition, the PUC has made it extremely difficult to find the Pa Code, having moved it to the Bulletin Page.

[55] PA PUC Consumer Complaint Procedures Guide, Hearing Procedure, p. 13, http://www.puc.state.pa.us/General/publications_reports/pdf/Consumer_Complaints_Procedure_Booklet.pdf

13. Exhibits were not exempt from prejudicial actions - There were many infractions which stripped Michael Jennings of almost all of his exhibits and put him in a no-win situation, which points to bias and collusion. The PUC is just going through the motions pretending they allow citizens to be heard, when in reality, they put the burden of proof on complainants, while knowing they will strike every shred of evidence the complainants produce, and will not grant the requested relief to any complainant.

Commonwealth agencies should not be bound by technical rules of evidence at agency hearings. The evidence in Michael Jennings' exhibits should have been examined under the hearsay exception rule 2 Pa. C.S. § 505. ALJ Elizabeth H. Barnes, in 2018, ruled as follows in Evangeline Hoffman-Lorah's hearing "smart" meter formal complaint:

> "As a Commonwealth agency, the Commission is governed by the Commonwealth's Administrative Law, 2 P. C.S. 101, et seq. Section 505 of the Administrative Agency Law, 2 Pa. C.S. 505 specifies that **a Commonwealth agency is not bound by Technical rules of evidence at an agency hearing.** Specifically, 2 Pa. C.S. 505 Provides**: 'Commonwealth agencies should not be bound by technical rules of evidence at agency hearings, and all relevant evidence of reasonably probative value may be received. Reasonable examination and cross-examination shall be permitted.' Thus, 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. Evidence is relevant if it tends to establish facts in issue.** *LeRoi v. Pa. State Civil Service Commission*, 382 A.2d 1260 (Pa. Commonwealth. 1978).[56] [Emphasis added.]

The Commission's regulations are to be liberally construed, particularly with regard to proceedings involving pro se litigants - 52 Pa. Code § 1.2(d):

> "Finally, it is noted that the Commission's regulations are to be **liberally construed** to secure **the just, speedy and inexpensive determination** of every action or proceeding to which they are applicable. 52 Pa.Code § 1.2. This is particularly true with regard to proceedings involving pro se litigants. 52 Pa.Code § 1.2(d)."[57] [Emphasis added.]

Deputy Chief ALJ Joel Cheskis[58] and ALJ Darlene Heep admitted some of the exact exhibits Complainant Michael Jennings presented, **Exhibits VV, WW, XX, YY, ZZ, AAA**, in Mr. Edward Lucey's hearing. ALJ Heep said regarding hearsay,

> "…I agree that it's hearsay because the person who prepared it is not here to testify regarding is and be cross-examined. However, **I'm going to allow it not for the truth of the matter asserted, but as a document reviewed and referenced by the complainant for purposes of**

[56] PUC Docket No. C-2018-2644957, *Evangeline Hoffman-Lorah v PPL Electric Utilities Corporation*, ALJ Elizabeth H. Barnes, Initial Decision, p. 15.
[57] PUC Docket No. C-2019-3010437, *John Codella v. PPL Electric Utilities Corporation*, Deputy Chief ALJ Joel Cheskis, Order Denying PPL Electric Utilities Corporation's Objections to the Admission of Complainant's Hearing Exhibits.
[58] Ibid.

this complaint."[59] [Emphasis added.]

Michael Jennings, Complainant, is a pro se complainant and the Commission's regulations are to be liberally applied to him and this did not happen. **This was a prejudicial action against a pro se complainant.**

Information is relevant if it tends to establish a material fact, tends to make a fact at issue more or less probable or supports a reasonable inference or presumption regarding a material fact. Deputy Chief ALJ Joel Cheskis has said,

> "Furthermore, information is relevant if it tends to establish a material fact, tends to make a fact at issue more or less probable or supports a reasonable inference or presumption regarding a material fact. *See*, Petition of the Borough of Cornwall for a Declaratory Order that the Provision of Water Service to Isolated Customers Adjoining its Boundaries Does Not Constitute Provision of Public Utility Service Under § 102, Docket Number P-2015-2476211 (Order dated September 11, 2015) at 9-10, *citing*, Smith v. Morrison, 47 A.3d 1311 (Pa.Super 2012), *alloc. denied*, 57 A.3d 71 (Pa. 2012)."[60]

All of Michael Jennings' exhibits support his assertions and definitely make a fact at issue more or less probable and absolutely supports a reasonable inference or presumption regarding a material fact. This is exactly why West Penn Power was allowed to wrongfully expunge all but two of Michael Jennings' exhibits.

The exhibits Michael Jennings submitted were an exception to the hearsay rule. Michael Jennings did not proffer himself as an expert, rather as a pro se complainant. He submitted each of the exhibits for what they said, not for the truth of the matter as to which an expert witness would testify. Michael Jennings is reasonably intelligent, is in possession of said exhibits, and he agrees with the exhibits. Michael Jennings used the exhibits for the purposes of this formal complaint; and, the exhibits support his assertions, so all of the exhibits should have been admitted. In the case of several of the exhibits, they are governmental advice, so they are not subject to hearsay, to cross examination, or expert admissions. **Exhibit XX**[61] is a table of authorities and is not subject to any hearsay rules, but was denied from entering the record.

Michael Jennings' exhibits should have been entered into the record per:

a. *Catherine J. Frompovich v. PECO Energy Company*, PUC Docket No. C-2015-2474602. The Commission's view concerning authentication of studies for admission:

> **"We note here that the ALJ's instruction** to Ms. Frompovich during the hearing that the writers of the studies would need to appear at the hearing in order to authenticate the studies **is stricter than the Rule permits.** While having

[59] PUC Docket No. C-2018-3003679, *Edward Lucey v. Met-Ed*, Transcript p. 71, lines 24-25, p. 72, lines 1-5.
[60] PUC Docket No. C-2019-3010437, *John Codella v. PPL Electric Utilities Corporation*, Deputy Chief ALJ Joel Cheskis, Order Denying PPL Electric Utilities Corporation's Objections to the Admission of Complainant's Hearing Exhibits.
[61] United States 2018 State Smart Meter Opt-Out Survey with Authorities, https://www.ehs.group.

> the authors present at the hearing to authenticate the studies is one acceptable way to satisfy the authentication requirement of **Rule 901**, we recognize that there may have been an additional way(s) to authenticate the studies. For example, **a comparison by the ALJ of an offered study with an authenticated study admitted in another proceeding would have been sufficient**."[62] [Emphasis added.]

The ALJ's instruction to Michael Jennings during the hearing was stricter than the Rule 901 permits by requiring the author of the studies to be present at the hearing to authenticate them. See the quote below and the quote from ALJ Heep on page 32-33 regarding hearsay. Michael Jennings understands that if scientific studies were admitted as evidence by the PUC in a prior hearing, they can be entered as evidence in other hearings.

Michael Jennings' **Exhibits Z, CCC, EEE, FFF, GGG, HHH, and III** were authenticated in

Laura Sunstein Murphy's formal complaint hearing, Docket No. C-2015-2475726.[63] Each of these studies reported adverse biological effects (harm) some of which include **insomnia, headaches, tinnitus, fatigue, cognitive disturbances, dizziness, overexpression of beta amyloid protein in rats, neurological effects, retinal detachment, cancer, and more.**

- **Exhibit Z – Self-Reporting of Symptom Development From Exposure to Radiofrequency Fields of Wireless Smart Meters in Victoria, Australia: A Case Series**

- **Exhibit CCC – Actions from Peer Review of the Draft NTP Technical Reports on Cell Phone Radiofrequency Radiation, March 26-28, 2018**

- **Exhibit EEE – Electromagnetic Pulse Exposure Induces Overexpression of Beta Amyloid Protein in Rats**

- **Exhibit FFF – Oxidative Stress – Long-term electromagnetic pulse exposure induces Abeta deposition and cognitive dysfunction through oxidative stress and over-expression of APP and BACE1.**

- **Exhibit GGG – List of 62 Reviews on Non-thermal Effects of Microwave Frequency EMFs**

- **Exhibit HHH – Retinal Detachment – Transcriptomic Analysis of Human Retinal Detachment Reveals Both Inflammatory Response and Photoreceptor Death**

- **Exhibit III – Biological Impacts – Scientific evidence contradicts findings and assumptions of Canadian Safety Panel 6: microwaves act through voltage-gated calcium channel activation to induce biological impacts at**

[62] PUC Docket No. C-2015-2474602, *Catherine J. Frompovich v. PECO Energy Company*, Opinion and Order, p. 38.
[63] PUC Docket No. C-2015-2475726, *Laura Sunstein Murphy v. PECO Energy Company*.

non-thermal levels, supporting a paradigm shift for microwave/lower frequency electromagnetic field action

Michael Jennings' **Exhibit BBB** was authenticated in Alan Schmukler's formal complaint hearing, Docket No. C-2017-2621285.[64] This study concluded there was an increase **brain and heart tumors** in rats exposed to RF.

- **Exhibit BBB – Ramazzini Study – Report of final results regarding brain and heart tumors in Sprague-Dawley rats exposed from prenatal life until natural death to mobile phone radiofrequency field representative of 1.8 GHz GSM station environmental emission**

b. *Romeo v Pa. Pub. Util. Commission, No. 498 C.D. 2016.* The *Romeo v. Pa. Pub. Util.* decision of the Commonwealth Court states:

> "…Just because he cannot personally testify as to the health and safety effects does not mean that his complaint is legally insufficient. **He could make out his claim through the testimony of others as well as other evidence that goes to that issue.** Because his complaint was not legally insufficient, the Commission erred in dismissing the complaint."[65] [Emphasis added.]

Michael Jennings is allowed to make out his claim, per *Romeo v. Pa. Pub. Util. Commission,* through the testimony of others as well as other evidence that goes to that issue.

Michael Jennings' **Exhibits B, O, CC, and DD** should have been admitted. **Exhibit B** contains letters from five licensed physicians and seven letters from other professionals substantiating his medical claims. Treating physicians diagnose disease, give advice on how to avoid worsening of disease, and treat disease. Dr. Semelka and other physicians have given their advice for the Jennings family in this formal complaint concerning the RF/EMF emissions and their medical conditions. **Exhibit O** was a signed statement from Mr. Mark Stewart stating his daughter had **seizures after a "smart" meter was deployed on his home.** **Exhibit CC** was an affidavit from Dr. Tana Slawecki who has worked for 15 years and has done extensive research at Penn State in regard to microwaves. Dr. Slawecki has experienced harm herself (**hearing loss, tinnitus, and pain**) from exposure to a WiFi-transmitter in her university office "…at power levels 10,000 lower than the FCC "safety" guidelines. **Exhibit DD** consists of eight stories of people and the harm they have endured due to the deployment of "smart" meters on their homes who have also gone through the formal complaint process and did not receive relief from the PUC.

- **Exhibit B – 12 Letters from Michael Jennings' family's board-certified physicians and others.** The reason given for striking these letters was they were too small and they were hearsay. The one issue could have been easily remedied as

[64] PUC Docket No. C-2017-2621285, *Alan Schmukler v. PPL.*
[65] *Romeo v. Pennsylvania Public Utility Commission,* 498 C.D. 2016, September 23, 2016. http://www.pacourts.us/assets/opinions/Commonwealth/out/498CD16_2-8-17.pdf

Michael Jennings' has the originals and could have easily provided full sized copies of the letters during the hearing via email.

#1 - EHMG Norvelt Family Medicine, Dr. Michael Semelka, DO (for son)
#2 – Highlands Hospital, Dr. Gil Perez, MD
#3 – Cleveland Clinic, Dr. Lyla Gumbs, MD
#4 – Dr. John W. Farabaugh, DC, MS, DACNB, FACFN, FABES
#5 – EH Neurology, Beth Ann Schmidle, NP-C
#6 – Kennedy Krieger, Dr. Anne Comi, MD
#7 – C-Life, Inc., Dr. Betty Magill, ND
#8 – Westmoreland Casemanagement and Supports, Inc., Carissa Griffin, MA, IDD Supports Coordinator
#9 – EHMG Norvelt Family Medicine, Dr. Michael Semelka, DO (for wife)
#10 – Diagonostic Associates, Dr. Stephen Wynert, MD
#11 – UPMC Hillman Cancer Center, Dr. Nathan Bahary, MD, PhD
#12 – Social Security Administration – Disability Letter for son. This letter was wrongfully expunged because it was only one page of a multiple page document. Pertinent information to Michael Jennings' Formal Complaint was provided within the one page provided. Complainant is in possession of this letter and could have easily provided a complete document by email during the hearing. See Appendix M for complete document.

- **Exhibit O – Mark Stewart's Testimony. Daughter had seizures after installation of "smart" meter.**

- **Exhibit CC - Affidavit of Tania Slawecki experienced adverse health effects from RF.**

- **Exhibit DD – Other ADA Cases Already Experiencing Adverse Health Effects**

c. Violations of 52 Pa. Code 5.406(a)(1)(2) –

"**052 Pa. Code 5.406(a)(1)(2) -**
(a) A report, decision, opinion or other document or part thereof, need not be produced or marked for identification, but may be offered in evidence as a public document by specifying the document or part thereof and where it may be found, if the document is one of the following:
(1) **A report or other document on file with the Commission**.
(2) An official report, decision, opinion, published scientific or economic statistical data or similar public document which is **issued by a governmental department, agency, committee, commission or similar entity which is shown by the offeror to be reasonably available to the public**."[66] [Emphasis added.]

[66] 52 Pa. Code § 5.406. Public documents.
https://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/052/chapter5/s5.406.html&d=

Michael Jennings' **Exhibits EE and UU** were taken from the PA PUC website. Mr. Ahr was allowed to enter exhibits from the PUC website into the record in the formal complaint of *Steve and Betty Magill v. West Penn Power*[67] on August 27, 2020 (telephonic hearing due to COVID-19, PUC offices closed for transcript viewing). Expunging these exhibits was a biased action and the PUC violated 52 Pa. Code 5.406(a)(1) when it refused to admit Michael Jennings' documents into evidence which are on file with the Commission. Also see quote from ALJ Heep on p. 32-33.

- **Exhibit EE – PUC files – Formal Complaint Article from PUC website**

- **Exhibit UU – Amended Formal Complaint from PUC website**

Michael Jennings' **Exhibits VV, WW, XX, YY, ZZ, AAA** are already on file with the Commission in Mr. Edward Lucey's[68] formal complaint hearing and should have been entered into the record per 52 Pa. Code 5.406(a)(1) referenced on page 36, or per quote regarding hearsay from ALJ Heep on page 32-33.

- **Exhibit VV - IEQ Indoor Environmental Quality[69] - Also a Governmental Report.**

- **Exhibit WW – JAN – Job Accommodation Network Accommodation and Compliance Series[70] - Also a Governmental Report.**

- **Exhibit XX – States with Opt-Outs[71] - Table of Authorities prepared by Laura Sunstein Murphy.**

- **Exhibit YY – American Academy of Environmental Medicine Letter[72]**

- **Exhibit ZZ – Letter submitted to the NPS Telecommunications Infrastructure Plan EA[73]**

- **Exhibit AAA – Planetary electromagnetic pollution: it is time to assess its impact.[74]**

Michael Jennings' **Exhibit D** is made up of public records. Public record is "a register of the legal transactions, proceeding, rules and statutes, laws and regulations that is kept on file to be able to be referred to if needed."[75] These laws supported Michael Jennings' contentions in this formal complaint. Expunging this exhibit violates 52 Pa. Code 5.406(a)(2).

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[67] PUC Docket No. C-2018-3005818, *Steve and Betty Magill v. West Penn Power,* telephonic hearing 8-27-2020.
[68] PUC Docket No. C-2018-3003679, *Edward Lucey v. Met-Ed*, Transcript p. 74, lines 2-5, Complainant's Exhibit No. 8.
[69] Ibid., Transcript p. 74, lines 2-5, Complainant's Exhibit No. 8.
[70] Ibid, Transcript p. 74, lines 6-11, Complainant's Exhibit No.9.
[71] United States 2018 State Smart Meter Opt-Out Survey with Authorities, https://www.ehs.group.
[72] *Edward Lucey v. Met-Ed*, Transcript p. 70, line 19 to page 72, line 5, Complainant's Exhibit No. 5.
[73] Ibid., page 72, lines 11-20, Complainant's Exhibit No. 6.
[74] Ibid., page 72, lines 22-25 to page 73, line 1, Complainant's Exhibit No.7.
[75] What is PUBLIC RECORD? definition of PUBLIC RECORD (Black's Law Dictionary). (2013, March 28), from https://thelawdictionary.org/public-record/

- **Exhibit D – Codes and Law**

Michael Jennings' **Exhibit MM** was more than reasonably available to the public as it was a public mailing to West Penn Power's customer base and should have been entered into the record. Why would West Penn Power object to something they mailed to Complainant and to all of their customer base? Is there incorrect information within the material that would support Michael Jennings' contentions? Could it be there are not numerous studies performed on the "smart" meters? Is this deceptive advertising?

- **Exhibit MM – Your Power is about to get Brighter**

Michael Jennings' **Exhibits KK, VV, WW, ZZ, AAA, CCC, and DDD** should have been entered into the record in his case per 52 Pa. Code § 5.406 (a)(2) referenced on page 36. Each of these exhibits came from governmental sources and should have been admitted to the record. (Exhibits VV, WW, ZZ, AAA, and CCC are listed on pages 37.)

- **Exhibit KK – FCC Grant Authorization -** taken from the FCC's Searchable FCC ID Database.

Michael Jennings' **Exhibit DDD** is a list of governmental reports from the US Dept. of the Army, NASA, US Air Force, US Naval Medical Institute, which all reported adverse biological effects from RF including: Used as a weapon, ventricular fibrillation, sudden infant death syndrome, **cancer**, headaches, fatigue, dizziness, disturbed sleep, memory impairment, bradycardia, **disruption of endocrine-humoral process**, molecular change in the body, **seizures**, behavioral effects, immunological effects, cataracts, hearing effects, and much, much more. **The Government has known of these effects as early as 1972.**

To print the governmental documents (listed in Complainant's expunged Exhibit DDD), which would have been thousands of pages of evidence in this proceeding, would have been a burden on Michael Jennings physically and financially. See quote on page 32 concerning "inexpensive determination." The full reports are online and available at the click of a mouse. Furthermore, the PUC violated 52 Pa. Code 5.406(a)(2) when it refused to admit this exhibit into evidence.

- **Exhibit DDD – Links to Governmental Reports reporting biological harm from RF**

  - **Dept. of the Army - Bioeffects of Selected NonLethal Weapons(fn1)** https://drive.google.com/file/d/0B5AX1TkPrJ5xZXd6eUxDSVAtcWc/view
  - **NASA Report (April 1981) "Electromagnetic Field Interactions with the Human Body: Observed Effects and Theories"** https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19810017132.pdf

  - **U.S. Air Force (June 1994) – "Radiofrequency Microwave Radiation: Biologic Effects and Safety Standards: A Review", Scott Bolen, Rome Laboratory, Air**

Force Materiel Command, Griffiss Air Force Base, New York.
http://www.agriculturedefensecoalition.org/sites/default/files/file/us_navy_new/271E_27_1994_U.S._Air_Force_Radiofrequnecy_Microwave_Radiation_Biological_Effects_Safety_Standards_Review_June_1994.pdf

- **Naval Medical Institute – Bibliography of Reported Phenomena 'Effects') and Clinical Manifestations Attributed to Microwave and Radio-Frequency Radiation Research Report, Report No. 2 Revised, Zorach R. Glaser, Ph. D., LT, MSC, USNR, Naval Medical Research Institute, National Naval Medical Center, Bethesda, MD 20014, 4 October, 1971, Second printing, with Revisions, Corrections, and Additions: 20 April, 1972, (Supercedes AD No. 734391**)
  https://ehtrust.org/wp-content/uploads/Naval-MRI-Glaser-Report-1976.pdf

Michael Jennings' **Exhibits C, F, G, H, I, J, K, L, M, N, P1, P2, P3, P4, P5, P6, P7, Q, R, S, T, U, V, W, X, Y, AA, BB, FF, GG, HH, II, JJ, QQ, RR, SS, YY, ZZ, AAA, and JJJ** are research studies; newspaper articles; letters; phone call summary sheets; physician visit summary; lab work; emails; hospital and organizational website information from credible websites such as Mayo Clinic, Sturge-Weber Foundation; and studies taken from the journals in which they were published, or from the National Institute of Health's National Library of Medicine webpage which is a national repository for biotechnology information. "PubMed is a free resource supporting the search and retrieval of peer-reviewed biomedical and life sciences literature with the aim of improving health – both globally and personally."[76] Each of the exhibits would have helped Michael Jennings make out his case. See quote from ALJ Heep on page 32-33 concerning hearsay. Exhibits P1-P7 are research articles by IEEE, the voice of industry itself, which the central nervous system is affected by **nerve block** from waveforms. Several of the exhibits showed the **impact of EMF on epileptic seizures** and also the **lowering of the threshold for seizures, structural changes in the rat brain, oxidative damage, myelin damage, effect on autoimmune diseases, brain tumors, induced seizure proneness, and more**.

- **Exhibit C – Complainant's accommodation letters sent to executives:**
  #1 – Mr. Samuel Belcher – First/Energy, Ohio
  #2 – Mr. David McDonald – West Penn Power, Greensburg

- **Exhibit F – Call to West Penn Power 800 customer info line -** Call notes from conversation with West Penn Power Employee, Wanda

- **Exhibit G – Visit Summary from Michael Jennings' son's neurologist concerning son's condition of Sudden Unexplained Death in Epilepsy**

- **Exhibit H – How Serious are Seizures, Epilepsy Foundation**

[76] https://www.nlm.nih.gov/bsd/pubmed.html

- **Exhibit I – Mayo Clinic – Risk of Uncontrolled Seizures**

- **Exhibit J – Cameron Boyce Obituary (Disney News) and Noah Penich Obituary (Tribune Review) – both passed away from Sudden Unexplained Death in epilepsy**

- **Exhibit K – What does uncontrolled or refractory seizures mean? Epilepsy Foundation**

- **Exhibit L – Sturge-Weber Website – Understanding Sturge-Weber**

- **Exhibit M – What is Seizure Threshold – Epilepsy Support Group**

- **Exhibit N – PANDAS Labs from Dr. Trifiletti**

- **Exhibit P1 - Mechanism of Nerve Conduction Block Induced by High- Frequency Biphasic Electrical Currents. IEEEE.** Michael Jennings provided an abstract and a full article.

- **Exhibit P2 – Modulation of axonal excitability by high-frequency biphasic electrical current. IEEE.** Michael Jennings provided an abstract and a full article.

- **Exhibit P3 – The role of slow potassium current in nerve conduction block induced by high-frequency biphasic electrical current. IEEE**. Michael Jennings provided an abstract and a full article.

- **Exhibit P4 – Effects of Ramped Amplitude Waveforms on the Onset Response of High-Frequency Mammalian Nerve Block. IEEE**. Michael Jennings provided an abstract.

- **Exhibit P5 – High-frequency electrical conduction block of mammalian peripheral motor nerve. IEEE.** Michael Jennings' provided an abstract.

- **Exhibit P6 – Transcutaneously coupled, high-frequency electrical stimulation of the pudendal nerve blocks external urethral sphincter contractions. IEEE**. Michael Jennings provided an abstract.

- **Exhibit P7 – Conduction Block in Myelinated Axons Induced by High-Frequency (kHz) Non-Symmetric Biphasic Stimulation. IEEE**. Michael Jennings provided an abstract and a full article.

- **Exhibit Q – What is the impact of electromagnetic waves on epileptic seizures?** Michael Jennings provided an abstract and a full article.

- **Exhibit R – Review of possible modulation-dependent biological effects of radiofrequency fields.** Michael Jennings provided an abstract.

- **Exhibit S – The effect of electromagnetic radiation on the rat brain: an experimental study.** Michael Jennings provided an abstract and a full article.

- **Exhibit T – Exposure to 1800 MHz radiofrequency radiation induces oxidative damage to mitochondrial DNA in primary cultured neurons.** Michael Jennings provided abstract.

- **Exhibit U – Effects of 2.4 GHz radiofrequency radiation emitted from Wi-Fi equipment on microRNA expression in brain tissue.** Michael Jennings provided an abstract.

- **Exhibit V – Cognitive and neurobiological alterations in electromagnetic hypersensitive patients: results of a case-control study.** Michael Jennings provided an abstract.

- **Exhibit W - Could myelin damage from radiofrequency electromagnetic field exposure help explain the functional impairment electrohypersensitivity? A review of the evidence.** Complainant provided abstract.

- **Exhibit X – Electromagnetic fields and autoimmune disease.** Michael Jennings provided a full article

- **Exhibit Y – Association between number of cell phone contracts and brain tumor incidence in nineteen U.S. States.** Michael Jennings provided abstract.

- **Exhibit AA – The action of pulse-modulated GSM radiation increases regional changes in brain activity and c-Fos expression in cortical and subcortical areas in a rat model of picrotoxin-induced seizure proneness.** Michael Jennings provided an abstract.

- **Exhibit BB – The human skin as a sub-THz receiver - Does 5G pose a danger to it or not?** Michael Jennings provided an abstract.

- **Exhibit FF – Picture of a burnt "smart" meter 8-13-19**

- **Exhibit GG – Philadelphia Inquirer – "PECO suspends smart-meter installation after fire"**

- **Exhibit HH – RF/EMF Emitting Invoicing Tool ("smart" meter) Explosion 7-20-19**

- **Exhibit II – WJAC Channel 6 news report - "Smart" Meter Fire**

- **Exhibit JJ – AP Article - Tiny town's power surge fries computers, appliances, siding.** News article from the Associated Press

- **Exhibit QQ – Email from Underwriters Laboratories (UL) –** from industry itself.

- **Exhibit RR – UL Online Certification -** From website of industry itself West Penn Power used internet documents from the UL Online Certification website in their interrogatory answers. It seems unfair Michael Jennings isn't allowed to use internet documents in this proceeding.

- **Exhibit SS – UL Follow-Up Services -** From website of industry itself West Penn Power used internet documents from the UL Online Certification website in their interrogatory answers. It seems unfair Michael Jennings can't do the same in this proceeding.

- **Exhibit JJJ – PPL's Disability Employment Awareness Month FaceBook Post.** A FaceBook post from industry itself, PPL.

Michael Jennings has links to full articles for most of the exhibits. These are accessible by a click of a mouse. **Expunging all but two of Michael Jennings' exhibits from the record is a prejudicial action against a pro se complainant.**

Why was West Penn Power allowed to expunge most of Michael Jennings pre-served testimony and exhibits? Because the information provided in each was correct and pointed to glaring harm from RF and the negligence of West Penn Power and the PUC to accommodate according to 66 Pa. C.S. §1501 and §1502, both of which allow for accommodation; the Americans With Disabilities Amendments Act, 42 U.S. Code § 12101 *et seq*.; the Rehabilitation Act of 1973 as Amended, 29 U.S.C. § 701 *et seq*.; and the Fair Housing Amendments Act, 42 U.S.C. § 3601 *et seq*. The PUC allowed West Penn Power to wrongfully expunge Michael Jennings' testimony and exhibits from the record for their own biased purposes of hiding the fact that they are not accommodating and are not following board-certified physician's explicit directives. West Penn Power can erase Michael Jennings' family's medical conditions on paper; however, these actions do not negate reality.

14. Mr. Renner - Mr. Renner was admitted into this proceeding at 9:44 AM, which was 16 minutes before the hearing was to start.

Michael Jennings began the proceeding by giving some background information on circumstances of his case and the ALJ stopped him. (Tr., pg. 49, lines 3-15.) The ALJ interrupted and said he had not sworn anyone in as of yet and was not receiving testimony. (Tr., p. 49, lines 17-18.) The ALJ then distracted Michael Jennings by suggesting he start with Dr. Semelka. (Tr., p. 49. 21-25 to p. 50, 1-8.) At the time, under pressure without any time to think things through,

Michael Jennings thought it was a good idea. In retrospect, Michael Jennings realizes he was being directed, and not in a good way, on a course that was designated by the ALJ and West Penn Power. At this point, it appears to be collusion, bias, and ex parte communication in order to discredit Dr. Semelka so West Penn Power would not have to use Dr. Davis and Dr. Israel in the proceeding.

Mr. Renner interrupted Michael Jennings' questioning of Dr. Semelka "assuming" he knew the intent of the COVID-19 line of questioning. Mr. Renner's assumption of a "5G conspiracy theory" (Tr. p. 76, lines 16-20.) was ***dead wrong***. This was a ploy Mr. Renner used to confuse the matter. The CDC's COVID-19 guidelines (**Governmental Report per 52 Pa. Code 5.406(a)(2)** - See Appendix E.) clearly reveal that each of Michael Jennings' family members are more vulnerable and susceptible to environmental toxins than the typical person. Dr. Semelka is extremely familiar with COVID-19 procedures and the CDC guidelines while working at Excela Health. Dr. Semelka confirmed that McKenzie is in the at-risk population. (Tr. p. 78, lines 18-22.)

There was a deliberate attempt to make a big ordeal about page numbers, which were of no real consequence, to avoid the relevant testimony of Dr. Semelka. The ALJ contributed to and allowed it to happen. The discussion on page numbers went on for almost two hours (Tr. pp. 85-155.) The pertinent questions in the testimony were not addressed to see if they were the same or not. Dr. Semelka's testimony clearly stated he believed the RF from this technology would adversely affect McKenzie's neurological conditions.

Dr. Semelka was there to be cross-examined, however, West Penn Power deliberately did not ask Dr. Semelka direct questions about his testimony so they could dismiss their experts. West Penn Power moved to strike Dr. Semelka. Michael Jennings did not know how to object to keep Dr. Semelka's testimony in the record, so he did not object.

Since Michael Jennings and his wife have never done anything like this, they did not know what they did not know. This was also Dr. Semelka's first time as an expert. Dr. Semelka was the expert concerning McKenzie's medical conditions as his treating physician and is Susan's PCP. Michael Jennings was striving to do the best he could to present his case without continuous interruption and subtle harassment.

15. Addressing Exhibit ALJ-2 - Since Susan Jennings is a patient of Dr. Semelka's, it made sense for her to communicate with Dr. Semelka concerning the formal complaint. There were lots of questions during the hearing concerning Dr. Semelka's testimony as to whether it was his testimony or not because there were two versions: an original and a version in the proper format. The version in the proper format had more pages than the original. It was his testimony, but the ALJ and Mr. Renner created so much confusion and did not consider the actual pertinent questions in the testimony. Even Dr. Semelka was thoroughly confused.

Concerning the testimony in the proper format, Susan asked the factual witness in our case about the format of an expert's testimony. The factual witness' hearing had already been held and she knew the format of her expert witness' testimony. The factual witness went over a

list of things that should be addressed in the testimony. Dr. Semelka should identify: himself, his profession, where he is employed, his educational background, his professional experience, and his patients in the case. The factual witness also said that Dr. Semelka should have exhibits he planned to use in his testimony. Susan remarked Dr. Semelka had not provided the identification questions and only listed the titles and pertinent information of the research articles he used as references at the end of the original document he had sent to her by email. The factual witness said Dr. Semelka would need to have full articles and not just the pertinent information, and these articles would be Dr. Semelka's exhibits.

Dr. Semelka is an extremely busy physician at Excela Health and did not know anything about the ins and outs of being an expert witness, only that he was willing to be there for his patients. Susan offered to get the testimony in the proper format and create the exhibits, from the research he had chosen to defend his stance, for Dr. Semelka. Dr. Semelka agreed and approved the work at each step of completion. This is not unlike the preparation that any attorney would do prior to a hearing. Dr. Davis and Dr. Israel have been testifying for the DC Law Firm of Watson & Renner for decades on the side of industry.

Michael Jennings is allowed, per *Romeo v. Pa. Pub. Util. Commission*[77], to make out his claim through the testimony of others as well as other evidence that goes to that issue. Accordingly, Dr. Semelka should have been allowed to continue testifying and his written testimony should have been entered into the record.

16. A New Pattern of Behavior Emerging - As Michael Jennings has been listening to recent PUC telephonic formal complaint hearings, he is noticing a pattern of behavior emerging. The ALJ's are eliminating what should be admissible evidence from appearing on the record. By doing so, the PUC is able to avoid their duty to comply, to decide, and to enforce 66 Pa. C.S. §1501 and §1502, both of which allow for accommodation, by suppressing any evidence that points to adverse biological effects from RF radiation or to safety issues.

The actions discussed in No. 1-16 above were prejudicial actions against Michael Jennings and other pro se complainants.

R. Due Process Rights Violated

> "Due process requires that a litigant give notice of the issues before the court and an **opportunity to present their case in relation to those issues**."[78] [Emphasis added.]

> "There were no exhibits properly introduced **or made a part of the record**…Since

[77] *Romeo v. Pennsylvania Public Utility Commission,* 498 C.D. 2016, September 23, 2016. **http://www.pacourts.us/assets/opinions/Commonwealth/out/498CD16_2-8-17.pdf**

[78] *Brooks Gall v Gall*, 840 A.2d 993, 997 (Pa. Super. 2003) (Quoting in re M.B., 514 A.2d 599, 601 (Pa. Super.1986), https://law.justia.com/cases/pennsylvania/supreme-court/1986/356-pa-super-257-1.html

no evidence was placed on the record here, it is clear that the above principles were **violated**."[79] [Emphasis added.]

Our state and federal governments should act in such a way that does not deny a resident of life, liberty, or property interest, the person must first be given the opportunity to be heard. Fundamental due process requires the right of a party to be heard and a ruling by a court which is devoid of testimony or evidence is an abuse of this right. Michael Jennings' case is almost devoid of testimony and devoid of evidence, even though he properly introduced the evidence, as it was wrongfully expunged which is outlined in Section Q. Bias and Prejudicial Actions Against A Pro Se Complainant, Nos. 1-16.

S. Violations of Judicial Conduct

"**Rule 2.2. Impartiality and Fairness.**
A judge shall uphold and apply the law, and shall perform all duties of judicial office fairly and impartially.
Comment:
(1) To ensure **impartiality and fairness to all parties**, a judge must be objective and open-minded.
(4) **It is not a violation of this Rule for a judge to make reasonable accommodations to ensure *pro se* litigants the opportunity to have their matters heard fairly and impartially**."[80] [Emphasis added.]

"**Rule 2.3. Bias, Prejudice, and Harassment.** [Emphasis added.]
Under the judicial code of conduct, a judge shall act without bias or prejudice.
(A) A judge shall perform the duties of judicial office, including Administrative duties, **without bias or prejudice**.
(1) **A judge who manifest biased or prejudice in a proceeding impairs the fairness of the proceedings and brings the judiciary into dispute**."[81]

"**Rule 2.6. Ensuring the Right to Be Heard**
(A) A judge shall accord to every person or entity who has legal interest in proceedings, or that person or entity's lawyer, the **right to be heard according to the law**.
(1) The **right to be heard is the central component of the fair and impartial system of justice.** Substantial rights of litigants can be protected only if **procedures protecting the right to be heard** or observed."[82] [Emphasis added.]

Under the judicial code the judge shall ensure the right to be heard. However, Michael Jennings' voice, through his testimony and exhibits, was wrongfully expunged ensuring him of a loss with the Commission. Section Q. Bias and Prejudicial Actions Against A Pro Se Complainant, Nos. 1-16 clearly show there was partiality, bias, prejudice, and a proceeding which impaired the fairness to Michael Jennings through prejudicial actions.

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[79] *Stone v Stone*, 439 A.2d 185, 189 (Pa. Super. 1981).
[80] 207.33 Code of Judicial Conduct. Subchapter A, Rule 2.2. Impartiality and Fairness, http://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/207/chapter33/chap33toc.html&d=reduce
[81] Ibid., Rule 2.3. Bias, Prejudice, and Harassment.
[82] Ibid., Rule 2.6. Ensuring the Right to Be Heard.

T. No Integrity

FirstEnergy (West Penn Power's parent corporation) is lacking in integrity as can be seen in the nuclear scandal that was reported in an editorial in the Tribune-Review at TribLive, Wednesday, July 22, 2020. (See Appendix H-1.) Sadly, this is not a rarity these days in the political/business world where money talks and honesty takes a real backseat.

> "What do you think when you hear about **bribery**? On Tuesday, federal prosecutors said **FirstEnergy Corp. paid more than $60 million in bribe money** for a push to bail out nuclear power plants in Ohio. The state's Speaker of the House Larry Householder, four other individuals and the group Generation Now were indicted in the case.
>
> FirstEnergy was not indicted, but according to Cleveland.com, U.S. Attorney for the Southern District of Ohio David DeVillers used careful language at his press conference, saying '***no one from that company has of yet been charged***.'…
>
> So if Akron-based FirstEnergy — **parent of West Penn Power**, Penelec, Penn Power and Med-Ed — was willing to spend $60 million on the bailout in Ohio, **what did they spend on the attempt in Pennsylvania**? It's hard to tell, as that massive outlay in Ohio doesn't show up in listed activity…
>
> Unfortunately, it isn't up to those ratepayers to decide for themselves whether FirstEnergy is the kind of company they want to patronize or not….
>
> **They need to be real customers, not a commodity.**
> Because bad things can happen when any one company has too much power."[83]
> [Emphasis added.]

This is proof positive that FirstEnergy is willing to commit crimes in order to force their own agenda. This is the same lack of integrity seen in these "smart" meter formal complaints. FirstEnergy and West Penn Power are willing to do whatever it takes to deploy their meters. Has this bribery behavior been a part of the "smart" meter deployment? Maybe someone should investigate.

> "Be patient and wait for the Lord to act; don't be worried about those who prosper or those who succeed in their evil plans." Psalm 37:7 Good News Translation
>
> "…and be sure your sin will find you out."
> Numbers 32:23b New King James Version

Predating the scandal in 2020, a release from the Department of Justice (DOJ), dated Friday, January 20, 2006, further supports the fact that FirstEnergy is devoid of integrity. (See Appendix H-2.) Together these two instances (and who knows the total number) establish a

[83] TribLive, Wednesday, July 22, 2020 8:18 p.m., Editorial: Does FirstEnergy have too much power?, https://triblive.com/opinion/editorial-does-firstenergy-have-too-much-power/

pattern of behavior for FirstEnergy: Lies, misinformation, bribery, and consumer mistrust. FirstEnergy admitted that the government could prove their case and paid money, to the tune of $28 million, to pay penalties instead of facing prosecution to make this incident disappear. See Appendix H-2 to see a full copy of the DOJ's release.

The DOJ's report of the situation clearly shows FirstEnergy employees made false statements…

> "The FirstEnergy Nuclear Operating Company (FENOC), has **agreed to pay $28 million in penalties, restitution, and Community service projects** as part of **an agreement to defer prosecution of the company**….Under the terms of the deferred prosecution agreement, FENOC **admits that the government can prove that its employees**, acting on its behalf, **knowingly made false representations** to the Nuclear Regulatory Commission (NRC) in the course of **attempting to persuade the NRC** that its Davis-Besse Nuclear Power Station **was safe** to operate beyond December 31, 2001."[84] [Emphasis added.]

…..and provided false photographs to the Nuclear Regulatory Commission.

> "Two of the defendants, Geisen and Siemaszko, are also charged with providing the NRC with **photographs** bearing captions that **falsely** indicate generally good conditions for visual inspections."[85] [Emphasis added.]

These false statements affected the safety of operation:

> "It is alleged that David Geisen, Andrew Siemaszko, and Rodney Cook **falsely represented** to the NRC that past inspections of the plant were adequate to assure **safe operation**…"[86] [Emphasis added.]

> "'By **misleading** the NRC about its prior **safety inspections**, FENOC [FirstEnergy Nuclear Operating Company] failed to meet its regulatory obligations and **violated the public's trust**…'"[87] [Emphasis added.]

Even more shocking and concerning violations were revealed, which are pertinent to this formal complaint:

> "The indictment further charges that the defendants **prepared and submitted false and misleading responses** to the NRC's bulletin and **concealed material information**, **eventually persuading the NRC that Davis-Besse was safe to continue**

[84] Firstenergy Nuclear Operating Company to Pay $28 Million Relating to Operation of Davis–Besse Nuclear Power Station *Two Employees and a Contractor Indicted for Making False Statements to the Nuclear Regulatory Commission* https://www.justice.gov/archive/opa/pr/2006/January/06_enrd_029.html
[85] Ibid.
[86] Ibid.
[87] Ibid.

operation…"[88] [Emphasis added.]

"In addition to alleging false and misleading statements to the NRC, the indictment alleges that Geisen, Siemaszko, and Cook **lied** about the extent of the inspections done in 1996, 1998, and 2000."[89] [Emphasis added.]

If the two preceding incidents weren't enough, there is more. Good Jobs First maintains a Violation Tracker database described as:

"**Discover Which Corporations are the Biggest Regulatory Violators and Lawbreakers Throughout the United States** - Violation Tracker is the first wide-ranging database on corporate misconduct. It covers banking, consumer protection, false claims, environmental, wage & hour, safety, employment discrimination, price-fixing, bribery and other cases resolved by over 50 federal regulatory agencies and all parts of the Justice Department since 2000 -- plus cases from state AGs and selected state regulatory agencies as well as employment-related class actions. In all: 437,000 civil and criminal cases with penalties of $627 billion. Violation Tracker is produced by the Corporate Research Project of Good Jobs First."[90]

The Violation Tracker Report on FirstEnergy[91] (See Appendix H-3), parent company, documents 51 violations of environmental, safety, and employment related offenses and the total dollar amount of penalties since 2000 is $1,209,669,493. These offenses are registered with the EPA, NRC, NLRB, private lawsuit (federal), OSHA, MULTI-AG, and WHD.

These crimes and violations are a blot on the PA PUC in its role as supervisor, regulator, and policy maker over FirstEnergy and West Penn Power, because the Commission has allowed this unethical, immoral, outrageous, and dishonorable behavior. 66 Pa. C.S. § 308.2 (a)(5)(9):

"**§ 308.2.(a)(5)(9) Other bureaus, offices and positions.**
(5) Monitor industry markets to detect anticompetitive, **discriminatory or other unlawful conduct**.
(9) Provide consumer information, **consumer protection** and **informal resolution of complaints**."[92]

This is further evidence of collusion between the PA PUC and the utilities under their governance.

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[88] Ibid.
[89] Ibid.
[90] Good Jobs First, Violation Tracker, https://www.goodjobsfirst.org/violation-tracker
[91] Violation Tracker Parent Company Summary, Parent Company Name: FirstEnergy, https://violationtracker.goodjobsfirst.org/prog.php?parent=firstenergy
[92] 66 Pa. C.S. § 308.2
https://www.legis.state.pa.us/cfdocs/legis/LI/consCheck.cfm?txtType=HTM&ttl=66&div=0&chpt=3&sctn=8&subsctn=2

A problem with integrity at the top of an organization permeates the workings of the whole entity. How much false and misleading information has been disseminated in the "smart" meter issue? How much material information has been concealed? How much pertinent information has been wrongfully expunged in the formal complaint proceedings before the Commission?

Michael Jennings can attest to the fact that almost all of his pertinent, damning testimony and exhibits were wrongfully expunged during his hearing. Multiply that by 5,400 complaints in 2018 (referenced on page 25, 2018 Smart Meter Plan Progress Report Smart Meter Technology Procurement and Installation Plan – MetEd, Penelec, PennPwr ,WPP) and that is a lot of information the Commission is allowing to be swept under the carpet and to be wrongfully expunged. There is no forthrightness, no honesty, and no scruples in the way these proceedings are being handled.

U. West Penn Power and the PUC Assuming the Role of Health Care Provider

Mr. John Ahr stated in an interrogatory (Set I, No. 11) that West Penn Power is not a hospital or a health care provider, yet West Penn Power and the PUC have usurped the role of healthcare provider without consent and should not be making a decision board-certified physicians should be making per 52 Pa. Code § 56.111 and per 66 Pa. C.S.A. § 1406 (f): **Responsible Utility Customer Protection.** Ignoring doctors' explicit medical directives is **NOT** responsible consumer protection. § 56.111 states:

> "A public utility may not terminate service, or refuse to restore service, to a premises when a **licensed physician**, physician assistant, or nurse practitioner **has certified that the customer** or an applicant seeking restoration of service under § 56.191 (relating to payment and timing) **or a member of the customer's or applicant's household is seriously ill or afflicted with a medical condition that will be aggravated by cessation of service. The customer shall obtain a letter from a licensed physician, physician assistant or nurse practitioner verifying the condition and promptly forward it to the public utility. The determination of whether a medical condition qualifies for the purposes of this section resides entirely with the physician, nurse practitioner, or physician assistant and not with the public utility.** A public utility may not impose any qualification standards for medical certificates other than those specified in this section."[93] [Emphasis added.]

If Michael Jennings does not accept the "smart" meter, he has been told his service will be terminated which will adversely affect members of his household who have serious medical conditions. Section 56.111 clearly states the PUC relegates the decision of service termination to ***a licensed physician*** and **NOT** the public utility. The PUC is not taking the advice of five licensed physicians in Michael Jennings' formal complaint. Notice the word "**or**" in 56.111 referenced on page 47. Michael Jennings' has letters from treating physicians, a family member who ***is*** seriously ill as McKenzie could experience Sudden Unexplained Death in Epilepsy

[93] 52. Pa. Code § 56.111, Retrieved from http://www.pacodeandbulletin.gov/Display/pacode?file=%2Fsecure%2Fpacode%2Fdata%2F052%2Fchapter56%2Fs56.111.html

(SUDEP) (Preserved Testimony, page 23, line 44.) if his seizures are exacerbated, and family members (Preserved Testimony, pages 27, lines 28- 44, page 28, lines 1-9), whose medical conditions would be aggravated by cessation of service.

The determination of who should be making medical decisions is reiterated in 66 Pa. C.S.A. Public Utilities § 1406(f). Oddly enough, the title of Chapter 14 is "**Responsible Utility Customer Protection**":

> **(f) Medical certification. --** A public utility shall not terminate service to a premises when a customer has submitted a medical certificate to the public utility. **The customer shall obtain a medical certificate verifying the condition and shall promptly forward it to the public utility. The medical certification procedure shall be implemented in accordance with commission regulations.**"[94] [Emphasis added.]

Consumers are **NOT** being protected under 52 Pa. Code § 56.111 nor under 66 Pa. C.S.A. § 1406(f). With this in mind, the Commission should not permit Mr. Ahr to be making these decisions as he is not well suited to make any medical decisions

Since West Penn Power was allowed to wrongfully expunge board certified physicians' letters from Complainant's record during the evidentiary hearing on July 23-24, 2020, West Penn Power and the PA PUC are ignoring the explicit medical directives from the physicians who provide care for Complainant's family's medical issues. Complainant has letters from five licensed physicians and seven letters from other professionals substantiating his medical claims. (Exhibit B – 12 - Letters from Doctors, etc.- **exhibit wrongfully expunged**.) West Penn Power and the PA PUC are giving biological and medical safety opinions in this case with no research, no medical training, and no medical safety training whatsoever.

No one at West Penn Power or the PUC is a neurologist, an epileptologist, a biologist, or a medical doctor of any kind and is not qualified to diagnose or treat patients. Because West Penn Power and the PUC employees are not medical doctors, they cannot factor in the uniqueness, vulnerability, and susceptibility of McKenzie's conditions in relation to how a "smart" meter will affect him. It is absurd that West Penn Power and the PUC conclude this technology is safe and will not harm Michael Jennings' family, especially his son, McKenzie, with no research or medical background to back up their claims. They only rely on a "Smart Meter Deployment Plan."

Giving an expert opinion in this case amounts to the unauthorized practice of medicine without a professional license as West Penn Power and the PUC are opining the "smart" meter technology is safe for Michael Jennings' family who have numerous medical diagnoses recognized by the Americans with Disabilities Act (ADA) and ***in light of licensed physicians' explicit medical directives to the contrary.***

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[94] 66 Pa. C.S.A. § 1406(f), https://www.legis.state.pa.us/cfdocs/legis/LI/consCheck.cfm?txtType=HTM&ttl=66&div=0&chpt=14&sctn=6&subsctn=0

> "The unauthorized practice of medicine occurs when someone gives **medical advice** or treatment **without a professional license.** The prohibition against the unauthorized practice of medicine is a precaution against people who would try to treat others without the proper training, or by using unproven methods which could harm or even kill their supposed patients. As a result, all states make the unauthorized practice of medicine a criminal offense with potentially serious penalties."[95] [Emphasis added.]

The point of unauthorized practice of medicine is someone giving medical advice without a professional license and without a doctor-patient relationship. West Penn Power and the PUC do not have professional medical licenses and do not have a doctor-patient relationship with Michael Jennings' family. However, both West Penn Power and the PUC are indeed giving an expert opinion concerning medical safety, which amounts to medical advice without a professional license, by stating this technology is safe for Michael Jennings' family's medical conditions while ***ignoring treating physicians' explicit medical directives.*** West Penn Power and the PUC, therefore, have taken on the role of healthcare providers.

If a "smart" meter is deployed on Michael Jennings' property ***against explicit medical advice from the professionals who should be making this decision***, the Commission and others could be personally liable as this is *ultra vires* and constitutes professional negligence which could possibly result in a criminal offense with potentially serious penalties.

The American Medical Association (AMA) has a code of ethics concerning a patient/doctor relationship:

> "**Code of Medical Ethics Opinion 1.1.1**
> The **practice of medicine**, and its embodiment in the **clinical encounter** between a patient and a physician, is fundamentally a **moral activity** that arises from **the imperative to care for patients and to alleviate suffering.** The relationship between a patient and a physician is **based on trust**, which gives rise to physicians' **ethical responsibility to place patients' welfare above the physician's own self-interest or obligations to others, to use sound medical judgment on patients' behalf, and to advocate for their patients' welfare.** A patient-physician relationship exists when **a physician serves a patient's medical needs.** Generally, **the relationship is entered into by mutual consent** between physician and patient (or surrogate)."[96]

A relationship between a patient and a physician is highly valued. West Penn Power and the PUC are not held to the AMA's Code of Medical Ethics yet are assuming the role of healthcare provider in Michael Jennings' formal complainant as they have expunged explicit medical directives of the Jennings' family's treating physicians.

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[95] What is the Unauthorized Practice of Medicine? (2016, June 21). Retrieved from https://healthcare.findlaw.com/patient-rights/what-is-the-unauthorized-practice-of-medicine.html

[96] Patient-Physician Relationships. (2016, November 14). Retrieved from https://www.ama-assn.org/delivering-care/ethics/patient-physician-relationships

1. **"Practice of medicine" and "clinical encounter"** – Since West Penn Power and the PA PUC are **NOT** hospitals or health care providers, they cannot provide the practice of medicine nor can there be a clinical encounter.

2. **The AMA equates this relationship to a "moral activity."** There is ***nothing*** moral about the "medical care" the Jennings family is receiving from West Penn Power and the PA PUC. There is no integrity in self-serving motives which can be seen in the FirstEnergy bribery scandal and the forced deployment of the "smart" meters. (See Section S. No Integrity.) The flagrant act of ignoring board-certified physicians' explicit directives is amoral. West Penn Power and the PA PUC are the epitome of the definition of amoral, "having or showing no concern about whether behavior is morally right or wrong."[97]

3. **"The imperative to care for patients and to alleviate suffering.**" Again, West Penn Power and the PA PUC are **NOT** hospitals and are **NOT** health care providers, even though they have stepped into this arena by usurping the Jennings' family physicians' explicit medical directives. The Jennings family is not receiving anything related to "care" from West Penn Power or from the PA PUC. Neither of these entities are interested in alleviating suffering, as can be seen in Appendix A, Harm Formal Complaints.

4. **"Based on Trust."** The relationship between the Jennings family, West Penn Power and the PA PUC is most definitely **NOT** based on trust! The biased, deceiving formal complaint process is evidence of the reason for mistrust. Also, West Penn Power and the PA PUC have broken any semblance of trust by not complying with Americans with Disabilities Amendments Act, 42 U.S. Code § 12101 *et seq*.; the Rehabilitation Act of 1973 as Amended, 29 U.S.C. § 701 *et seq*.; and the Fair Housing Amendments Act, 42 U.S.C. § 3601 *et seq*. in light of doctors' explicit medical directives. The FirstEnergy bribery scandal also plays into the trust issue.

5. **"Ethical responsibility to place patients' welfare above the physician's own self-interest or obligations to others."** It is apparent that West Penn Power and the PA PUC are **NOT** putting their customers' welfare above their own self-interests or obligations to others from their mantra, "…obligated to comply with Act 129, which requires the installation of smart meters at every service location…***without exception for any reason***." The FirstEnergy bribery scandal implies West Penn Power has no ethics.

6. **"To use sound medical judgment on patients' behalf."** West Penn Power and the PA PUC are **NOT** using sound medical judgment as they are not hospitals and are not

[97] Amoral. (n.d.). Retrieved from https://www.merriam-webster.com/dictionary/amoral

health care providers. They are most obviously **NOT** acting on the customers' behalf, but acting on their own self-serving interests.

7. **"To advocate for their patients' welfare."** Nothing could be farther from the truth in this formal complaint situation. Neither West Penn Power nor the PA PUC is advocating for their customers' welfare as can be seen in Appendix A. Harm Formal Complaints. No one has won their formal complaint in these "smart" meter proceedings. Attorney Tiffany Tran confirmed this information on June 10, 2020 in Commonwealth online oral arguments. (See page 26.)

8. **"The relationship is entered into by mutual consent."** The Jennings family did **NOT** consent to the relationship whereby West Penn Power and/or the PA PUC would be their health care provider. However, this relationship was entered into ***without*** the consent of the Jennings family when West Penn Power and the PA PUC appointed themselves health care providers by disregarding the Jennings' family's board-certified physicians' explicit medical directives.

IV. PROPOSED FINDING OF FACT

A. Michael Jennings, Complainant, resides at 200 Brook Hollow Road, Mount Pleasant, PA 15666.

B. Michael Jennings is a pro se complainant and has not retained counsel.

C. Michael Jennings filed a formal complaint on November 15, 2018 to protect his family's health and well-being as the deployment of an RF/EMF-emitting device ("smart" meter) on his home is not safe nor is it reasonable.

D. West Penn Power is an electric distribution company regulated by the Pennsylvania Public Utilities Commission.

E. Michael Jennings is a customer receiving residential electrical service from West Penn Power at the above-mentioned address and his account is consistently in good standing.

F. West Penn Power is not complying their own mantra, "…obligated to comply with Act 129, which requires the installation of smart meters at every service location…***without exception for any reason***," as certain areas of the State are allowed to have Alternative Communication Systems, and other areas with less than 100,000 customers are not required to have a "smart" meter. This is discrimination in service under § 1502.

G. The FCC recognizes RF/EMF microwave emissions, like the emissions from "smart" meters, as an environmental toxin as they have guidelines concerning exposure to such emissions.

H. The Itron Openway Centron Meter, in which West Penn Power seeks to deploy on Michael Jennings' property, emits at least 1,268 pulses of RF radiation per day, but could possibly emit as many as hundreds of thousands of pulses per day. Michael Jennings' provided exhibits (**which were wrongfully expunged**) showing the electromagnetic waves, which are emitted by "smart" meters, have detrimental health effects, especially for someone with a compromised central nervous system. (See Appendix I, Research.)

I. Michael Jennings has eliminated RF/EMF emissions in his home through the Building Biology protocol in order to protect the health and well-being if his family.

J. Michael Jennings' family has medical diagnoses and disabilities that are recognized and covered by the Americans with Disabilities Act (the ADA): colon cancer, multiple sclerosis, autism, epilepsy (possibility of experiencing Sudden Unexplained Death in Epilepsy (SUDEP) if seizures are exacerbated), Sturge-Weber Syndrome, Intellectual and Developmental Disability, and Pediatric Acute-onset Neuropsychiatric Syndrome (PANS). McKenzie Jennings has been accommodated his whole life and he is 26 years old. Susan was accommodated while employed.

K. On the advice of board-certified, licensed physicians that his son, McKenzie, should not be subjected to the RF/EMF emissions of a "smart" meter deployed on his home, he requested an accommodation from West Penn Power per 66 Pa. C.S.A. § 1501 and § 1502.

L. West Penn Power totally ignored Michael Jennings' ADA requests.

M. Michael Jennings filed a formal complaint on November 15, 2018 to protect his family's health and well-being as the deployment of an RF/EMF-emitting device on his home is not safe nor is it reasonable.

N. The Commission cannot ignore Michael Jennings request for an Americans with Disabilities Act accommodation for his family. (See Appendix A.)

O. Neither West Penn Power nor the PA PUC are accommodating per § 1501, confirmed by Mr. Ahr (reference on page 19) and Attorney Tran (reference on pages 26).

P. West Penn Power admits they are not accommodating for disabilities as they state there are no exceptions for any reason concerning installation of "smart" meters, and accommodation would be a reason.

Q. West Penn Power does accommodate when it is for their own biased purposes as they accommodate certain areas of the state with Alternative Communications Systems (1.5%) and for areas with less than 100,000 customers.

R. West Penn Power and the PA PUC are **NOT** a hospital, a doctor, or a health care facility of any nature.

S. The ***most egregious violation*** is the fact that West Penn Power and the PA PUC are dismissing the Jennings family's board certified, licensed physicians' explicit medical directives. This amounts to second-guessing the medical judgment of treating physicians. (See Section U.)

T. There is nothing in Act 129 of 2008 or in the PUC's Implementation Order of 2009 that implies safety conditions, which would include medical and biological safety, under 66 Pa. C.S. § 1501, can be ignored.

U. There is nothing in the "Smart Meter Deployment Plan" that implies safety conditions, which would include medical and biological safety, under 66 Pa. C.S. § 1501 can be ignored.

V. Michael Jennings' furnace, hot water heater and stove have electric igniters and will not function without electricity. Without electricity, there will be no heat during winter months. Michael Jennings' family would suffer from a lack of heat. Michael Jennings family will not be able to cook food in the home, nor will they have hot water. Another problem would ensue during winter months as water pipes would freeze and burst, causing damage to Michael Jennings' home. Neither of these four conditions not be in the best interest of the Jennings family who have ADA recognized diagnoses and is not safe or reasonable.

W. Michael Jennings' home is cooled by an air conditioning unit that does not function without electricity. A lack of cooling during the hot summer months would not be in the best interest of the Jennings family who have ADA recognized diagnoses and is not safe or reasonable.

X. Michael Jennings owns a refrigerator which requires electricity to function. Without electricity, Michael Jennings family will not be able to store perishable foods. This is not in the best interest of the Jennings' family who have ADA recognized diagnoses and is not safe or reasonable.

Y. West Penn Power's "smart" meters operate by transmitting information via radiofrequency radiation signals thousands and thousands of times per day.

Z. Michael Jennings is not required to prove medical harm as in a tort case in a court of law as the PUC formal complaint is heard in an ***administrative hearing.*** See *Wright v. Willamette Industries*, Inc., 91 F.3d 1105, 1107 (8th Cir. 1996)[98]. Michael Jennings and his family are entitled to relief based on a showing (**which was all wrongfully expunged**) that there is an abundance of research which has proven biological harm and other complainants who have already sincerely testified to harm. (See Appendix B.)

AA. Harm has been proven over and over again. This point is blatantly ignored. There is a plethora of independent peer-reviewed studies proving harm from the emissions of "smart" meters.

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[98] *Wright v. Willamette Industries*, Inc., 91 F.3d 1105, 1107 (8th Cir. 1996)
https://www.leagle.com/decision/1996119691f3d110511049

BB. Dr. Christopher C. Davis, one of the utilities' own experts, has proven harm.

CC. The entire PA PUC Formal Complaint process is biased and prejudicial against pro se complainants. The deck is stacked against pro se complainants, even complainants who have had legal representation.

DD. There were many prejudicial actions against Michael Jennings during the Formal Complaint process and his Formal Complaint Hearing, July 23-24, 2020.

EE. Michael Jennings knows the outcome of his formal complaint before a ruling: he will not prevail as no pro se complainants have won their case thus far.

FF. West Penn Power has not met its burden of proof that its "smart" meters and AMI metering system are not harmful to the Jennings family. Mr. Ahr has only offered an industry biased deployment manual which does not prove safety.

GG. There are no studies proving the safety of "smart" meters. The absence of studies does not imply the "smart" meters are safe.

V. Proposed Conclusions of Law

A. Michael Jennings has never and does not intend to request a "smart" meter. Michael Jennings has not agreed to pay for a "smart" meter. Michael Jennings does not live in new building construction, and therefore is not required to have a "smart" meter under any interpretation of Act 129. Michael Jennings does not have a "smart" meter at all; therefore, he does not have a "smart" meter that has exceeded its useful life.

B. Michael Jennings believes that the deployment of any wireless device by West Penn Power on his property constitutes unsafe service to his family, especially with explicit physician directives which support his contention. Pennsylvania law requires West Penn Power, as an electric utility, to provide service that is safe and reasonable per 66 Pa. C.S. § 1501.

C. Nothing in Act 129 of 2008 requires the installation of a "smart" meter on a customer's home if such installation would be unsafe or unreasonable.

D. The Commission, in its role as supervisor, regulator, and policy maker for West Penn Power, most definitely has jurisdiction to comply, to decide, and to enforce 66 Pa. C.S. §1501 and § 1502, which both allow for accommodation, and without discrimination.

E. McKenzie Jennings is deemed disabled by the Social Security Administration. (See Appendix M.) No need to interpret, it has already been done. **The key issue is *compliance*.**

F. Neither West Penn Power nor the Commission has the authority to abrogate the decisions of Michael Jennings' family physicians as there is no ruling on this matter giving the PA PUC this kind of authority.

G. West Penn Power and the PA PUC are in violation of the following State rules, regulations, and laws as discussed throughout this brief (See Table of Authorities for citations):

- 66 Pa. C.S. § 1501 and § 1502
- 66 Pa. C.S.A. § 1406(f)
- 66 Pa. C.S. § 308.2 (5)(9)
- 2 P. C.S. 101, et seq. § 505
- 52 Pa. Code § 1.2(d)
- 52 Pa. Code § 5.406(a)(1)(2)
- 52 Pa. Code § 56.111
- 52 Pa. Code § 57.28(a)(1)
- 52 Pa. Code 57.194
- 52 Pa. Code § 57 Subchapter O.
- 207.33 Code of Judicial Conduct. Subchapter A, Rule 2.2, Rule 2.3, Rule 2.6
- Act 129 of 2008
- Constitution of the Commonwealth of Pennsylvania, § 1

H. West Penn Power and the PA PUC are in violation of the following Federal Laws (See Table of Authorities for citations):

- Americans With Disabilities Amendments Act, 42 U.S. Code § 12101 *et seq*.
- The Rehabilitation Act of 1973 as Amended, 29 U.S.C. § 701 *et seq*.
- The Fair Housing Amendments Act, 42 U.S.C. § 3601 *et seq*.
- US Constitution, Fourteenth Amendment, Section 1

I. West Penn Power and the PA PUC are in violation of Fair Housing, 42 U.S.C. § 3604(f)(3)(B) - "a refusal to make reasonable accommodations in rules, policies, practices, or services, when such accommodations may be necessary to afford such person equal opportunity to enjoy a dwelling."

J. West Penn Power and the PA PUC are in violation of the Nuremburg Code.

K. Neither Act 129 of 2008 nor the PUC's Implementation Order of June 2009 is mandated. No one can provide the sections of Act 129 of 2008, or the Implementation Order of June 2009, that proves this Act and Implementation Order are required or are mandated.

L. 52 Pa. Code § 57 Subchapter O. plainly states the public is **NOT required** to participate in the "smart" meter deployment.

M. The Commission has allowed unethical, immoral, outrageous, and dishonorable behavior and is in violation of 66 Pa. C.S. § 308.2 (5), which charges the Commission to monitor the utilities they regulate for "discriminatory or other unlawful conduct." FirstEnergy and West Penn Power have no integrity. FirstEnergy, parent company, has committed bribery, has lied, has disseminated misinformation, and more.

N. The Commission has also violated another clause of 66 Pa C.S. § 308.2 (9) as they are also charged with providing "consumer protection and informal resolution of complaints." The Commission is not providing either of these provisions to complainants in these formal complaint proceedings.

VI. PROPOSED ORDER

For all of the reasons set forth in this document, Complainant Michael Jennings respectfully requests that the Commission issue an order in this proceeding that states:

A. That West Penn Power is required under Pennsylvania law, 66 Pa. C.S. § 1501, to provide service that is safe and reasonable.

B. That West Penn Power is to provide accommodation per the requirements pursuant to 66 Pa. C.S. § 1501 and § 1502, and 52 Pa. Code § 57.194, in order to uphold his right to keep his electromechanical analog meters or meters for measuring power usage that does not contain a switched mode power supply and does emit any radiofrequency electromagnetic, wireless microwave radiation. **The Commission does have jurisdiction to comply, to decide, and to enforce 66 Pa. C.S. § 1501 and § 1502, which both allow for accommodation, and without discrimination.**

C. That the Commission requires and directs West Penn Power to accommodate through the mandated state-equivalent law which is "Pennsylvania Human Relations Act," Act of 1955, P.L. 744, No. 222, as amended JUNE 25, 1997 Act 34 OF 1997, 43 P.S. §§ 951-963 that encompasses the Fair Housing Act Public Law 90-284, 42 U.S.C. § 3601 et seq. and the Americans with Disabilities Act of 1990 Public Law 101-336, 42 U.S.C. § 12101 et seq.

D. That the Commission requires and directs West Penn Power to honor the explicit medical directives from his family's board-certified physicians, who should rightfully make this decision per 52 Pa. Code § 56.111 and 66 Pa. C.S.A. § 1406(f).

E. That Michael Jennings and his family must be afforded a safe place in their home so their bodies can rest and get restorative sleep without the forced interference of environmental toxins of the "smart" meter microwave emissions 24/7/365.

F. That the Commission compel West Penn Power to desist from deploying or attempting to deploy any wireless equipment that has been shown to cause pathologies and could cause McKenzie to experience Sudden Unexplained Death in Epilepsy which would amount to assault.

Michael Jennings would like to conclude with these questions:

- Why are West Penn Power and the Commission ignoring board-certified, licensed physicians' explicit medical directives?

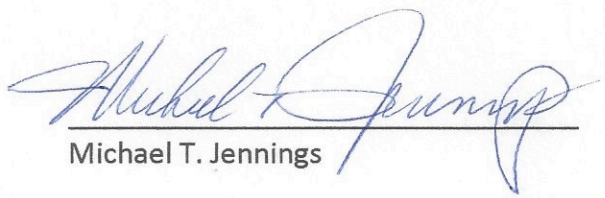
- Where is the ruling that gives West Penn Power or the Commission the right to override the judgement of medical professionals?

- Can the Commission ignore an ADA request (See Appendix A.) and a letter from the Social Security Administration stating McKenzie Jennings is a disabled dependent (See Appendix M.) in conjunction with explicit board-certified physicians' directives?

- Are West Penn Power and the Commission willing to take on that liability?

Dated: October 9, 2020

Respectfully Submitted,



Michael T. Jennings

Appendix A

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION

ADA STATEMENT FOR MICHAEL T. JENNINGS' FAMILY
October 9, 2020

1. My name is Michael T. Jennings. I am a complainant in the formal complaint against my assigned electric distribution utility, West Penn Power, Docket No. C-2018-3006031.
2. Each member of my family has a disability/ies:

   • Michael T. Jennings – Stage 4 colon cancer with the most aggressive cancer gene, BRAF.

   • Susan M. Jennings – Multiple sclerosis, Hashimoto's Thyroiditis

   • McKenzie Jennings – Sturge-Weber Syndrome; PDD-NOS (autism); Epilepsy with refractory seizures, atonic; possibility of Sudden Unexplained Death in Epilepsy (SUDEP); Intellectual and Development Disability; hypothyroidism; brain atrophy; Pediatric Acute-Onset Neuropsychiatric Syndrome (PANS); and a mild heart murmur.

   Our disabilities interfere with many of our daily living activities:

   • **Michael:** I am diagnosed with stage four colon cancer. Wireless radiation has profound biological effects such as oxidative stress and DNA damage. The wireless radiation from the EMF/RF-emitting invoicing tools ("smart" meters) will be pulsed which has a more profound effect on the body which is made up of cells. Due to my having cancer, my cells have the propensity to have abnormal proliferation and this close proximity wireless radiation would increase abnormal

cell activity in my body. Chronic exposure to wireless radiation would increase the pain in my joints and muscles; disturb my nighttime sleep pattern; and cause fatigue. I help my wife with our disabled son and if I was chronically exposed to wireless radiation, I would not be able to fulfill my portion of care.

• **Susan**: Susan has been diagnosed with Multiple Sclerosis, which involves concentrations of metals in the body. When there is more microwave radiation in the atmosphere, such as is would be the case with an EMF/RF-emitting invoicing tool ("smart" meter), her body is more conductive, as a result of the metals concentration. Therefore, her body is more reactive to microwave radiation. If she were to be exposed to radiation frequencies, she would have both difficulty in sleeping and fatigue, brain fog and inability to keep up with the daily chores her family members need her to do, because of their medical conditions. Furthermore, wireless radiation, if transmitted ubiquitously, would prevent her from participating in society.

• **McKenzie:** Epilepsy is a brain dysfunction where there is abnormal electrical activity. The wireless radiation from wireless RF/EMF-emitting invoicing tools will utilize pulsed millimeter waves and will be pulsing 24/7/365. The pulsing will cause an increased frequency of seizures by interfering with his brain function, interrupting his electrical impulses, and causing damage to his compromised central nervous system. Continual exposure to wireless radiation would increase his seizure frequency, cause physical impairment due to the increased number of seizures, and further damage his central nervous system and brain; all of which

will negatively affect his quality of life and ability to function. McKenzie will not be able to be a part of society as wireless radiation will be pervasive.

3. Each of us are under physicians' care for our disabilities. I have doctors' letters to confirm our disabilities. **(Exhibit B, 12 Letters From Doctors, etc., was wrongfully stricken during evidentiary hearing, see Complainant's Main Brief, Section V, Subsection B, No. 2.)**
4. I have requested a reasonable accommodation from West Penn Power for my disabilities, namely, a non-electronic electromechanical analog meter, (with no transmitting device installed) to measure my electrical usage, instead of a so-called "smart" meter, which emits wireless microwave signals.
5. This accommodation will not cause any undue burden on my assigned utility. In fact, this accommodation is offered to customers in over 30 other states of the US, and is far less expensive than deploying a smart meter on my property.
6. West Penn Power has refused to accommodate our health needs, and threatens to terminate my electricity supply if I do not allow it to install a microwave, EMF/RF-emitting "smart" meter on my property.
7. The PA PUC has violated its mandate by misconstruing both the legislative intent of Section 2807 (f)(2) of PA Act 129 of 2008: 66 Pa. C.S.– Omnibus Amendments Act of Oct. 15, 2008, P.L. 1592, NO. 129, §2807 (F)(2) ("Act 129"), and the implementation of Section 2807 (f)(2) Act 129, as to smart meter deployment on my property.
8. West Penn Power says it is required by the PUC and Act 129 to deploy a

Appendix A

microwave, EMF/RF-emitting "smart" meter on my property and if I refuse, that it is within the law to terminate my electricity.

9. As a resident of the Commonwealth of Pennsylvania, I am entitled to receive electricity and other necessary utilities, if I pay for those utilities in accordance with my usage.

10. My family requires electricity to live. I pay all my utility bills on time.

11. By not providing me with my requested reasonable accommodation under threat of termination of my electricity supply, the PUC and my utility, West Penn Power, are violating many state and federal laws: (1) the federal Americans with Disabilities Act (as amended by the ADA Amendments Act), 42 U.S.C.A. §§ 12101 *et seq.*; (2) Section 504 of the federal Rehabilitation Act of 1973, 29 U.S.C.A. § 794(a); (3) the federal Fair Housing Act, 42 USC Section 3601 *et seq.*; (4) the Pennsylvania Constitution; (5) the United States Constitution; (6) the PA PUC Act, 66 PA Code, Sections 1501 and 1502.

12. Complainant submitted the following Exhibits with his testimony and the exhibits were wrongfully expunged during evidentiary hearing.

- **EXHIBIT B**: My family's treating physicians' notes, which is marked ***CONFIDENTIAL*** and must be kept in a Confidential file in these proceedings. **(Exhibit B was wrongfully expunged during evidentiary hearing, see Complainant's Main Brief, Section V, Subsection B, No. 2.)**

- **EXHIBIT VV**: IEQ Indoor Environmental Quality Project Report, Access Board

Appendix A

(2006)

(Exhibit VV was wrongfully expunged during evidentiary hearing, see Complainant's Main Brief, Section V, Subsection B, No. 6.)

• **EXHIBIT WW:** Department of Labor - Job Accommodation Network in its Accommodation and Compliance Series: Employees with Electrical Sensitivity

(Exhibit WW was wrongfully expunged during evidentiary hearing, see Complainant's Main Brief, Section V, Subsection B, No. 6.)

• **EXHIBIT XX**: United States 2018 State Smart Meter Opt-Out Survey with Authorities

(Exhibit XX was wrongfully expunged during evidentiary hearing, see Complainant's Main Brief, Section V., Subsection B, No. 9.)

• **EXHIBIT YY:** American Academy of Environmental Medicine, Recommendations Regarding Electromagnetic and Radiofrequency Exposures (July 12, 2012)

(Exhibit YY was wrongfully expunged during evidentiary hearing, see Complainant's Main Brief, Section V., Subsection B, No. 2.)

• **EXHIBIT ZZ:** Davis, Devra: Environmental Health Trust Research Letter to Staff at Teton National Park Re: Telecommunications Infrastructure Plan EA (April 10, 2019).

(Exhibit ZZ was wrongfully expunged during evidentiary hearing, see Complainant's Main Brief, Section V, Subsection B, No. 2.)

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• **EXHIBIT AAA:** Priyanka Bandara, David O. Carpenter, "Planetary electromagnetic pollution: it is time to access its impact"*, The Lancet Planetary Health*, Volume 2, Issue 12, 2018, Pages e512-e514,ISSN 2542-5196, doi.org/10.1016/S2542-5196(18)30221-3

(Exhibit AAA was wrongfully expunged during evidentiary hearing, see Complainant's Main Brief, Section V, Subsection B, No. 2.)

Appendix B

A FEW SMART METER HARM FORMAL COMPLAINT CASES
BEFORE THE PUC that we could find and validate as of: May 27, 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
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

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2014 Cont'd

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 February 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 (dismissed by PUC because Romeo did not yet have a smart meter deployed on his property; Commonwealth Court reversed PUC dismissal, opining that Romeo did not have to suffer harm from a smart meter, he could offer other evidence such as witnesses who had been harmed)

Polite v. PECO, F-2015-2514570 (settled)

Tucker v. PECO, C-2015-2515592 (settled when Tuckers moved socket to other side of their house. Both owners suffer from 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

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2015 Cont'd

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

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 because of difficulties to write briefs)

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2017 Cont'd

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
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

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2018 Cont'd

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
Jennings v. WPP, C-2018-3006031
McDonald v. MetEd, C-2018-3003758 (closed because of difficulties pursuing case)
Magill v. WPP, C-2018-3005818
Cole v. Met-Ed, C-2018-3003023
Arndt v. DLC, C-2018-3003482 (closed because of difficulties pursuing case)
Beck v. PPL, C-2018-3002924
Sabatine v. WPP, C-2018-3002804
Sabatini v. WPP, C-2018-3005177
MacMinn v. Met-Ed, C-2018-3005574 (closed)
Beglin v. Penelec, C-2018-3005272
Young v. WPP, C-2018-3001720 (closed)
Smith-Williams v. Met. Ed. C-2018-3000222
Kibler v. Met-Ed, C-2018-3003158
Fitz v. PPL, C-2018-3006048 (closed)
Hendin v. Met-Ed, C-2018-3003324
Fiedler v. Met-Ed, C-2018-3003642
Higgins v. PPL C-2018-3005927 (closed)
Hess v. PPL, C-2018-3003337
Masler v. PPL, C-2018-3003075
White v. PPL, C-2018-3003468
Benhayon v. PPL, C-2018-3003491
Barris v. PPL, C-2018-3003579
Carbaugh v. PPL, C-2018-3001751
Braun v. Met-Ed, C-2018-3003001

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Poroszlai v. PPL, C-2018-3006190
Cantel v PPL, C-2018-3005105
Anglemyer v Met-Ed, C-2018-3006757
Steely v. Met-Ed, C-2018-3004770
Betchy v. WPP, C-2018-3000257
Poole v. PPL, C-2018-300584

*Haas v. PPL, C-2018-3005997 *Separate case against the PUC and PPL currently in Commonwealth Court: Haas, W. v PUC, PPL intervenor, 658 MD 2019

Rodriguez v. PPL, C-2018-3006412
Scott v. DLC, C-2018-3004042
Skillan v. Met-Ed, C-2018-3001472
B. Colella v. PPL, C-2018-3003179
Mosley v. Met-Ed, C-2018-3001526
Aguirre v. PPL, C-2018-3005352
Utter v. Met-Ed, C-2018-3005969
Pacifico v Met-Ed, C-2018-2645607
Smith v Met-Ed, C-2018-3000235
Althouse v Met-Ed, C-2018-3001141
Toth v Met-Ed, C-2018-3001563
Wallace v Met-Ed, C-2018-3001564
Spohn v Met-Ed, C-2018-3001725
Lawrence v. MetEd, C-2018-3001846
Przymemski v. MetEd, C-2018-3002274
Forichon v. Met-Ed, C-2018-3002530
Thomas E. List v. Met-Ed, C-2018-3003090
Thomas E. List v. Met-Ed, C-2018-3003091
Thomas E. List v. Met-Ed, C-2018-3003093
Szundy v. Met-Ed, C-2018-3003157
Ney v. Met-Ed, C-2018-3003238
Mitchell v. Met-Ed, C-2018-3003280 (settled)
Bae v. Met-Ed, C-2018-3003332
Rouse v. Met-Ed, C-2018-3003602
Armstrong v. Met-Ed, C-2018-3004052
Licht v. Met-Ed, C-2018-3004078
Hartenstein v. Met-Ed, C-2018-3004138

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Trieb v. Met-Ed, C-2018-3004454
Corrigan v. Met-Ed, C-2018-3004611
Siegle v. Met-Ed, C-2018-3004647
Kelly v. Met-Ed, C-2018-3004681
Salinas v. Met-Ed, C-2018-3004754
Evelyn Dreher v. Met-Ed, C-2018-3005217
Tellefsen v. Met-Ed, C-2018-300525
Goodhart v. Met-Ed, C-2018-3006054
Seibert v. Met-Ed, C-2018-3006123
Maldony v. Met-Ed, C-2018-3006145
Schomberg v. Met-Ed, C-2018-3006189
David Xi v. Met-Ed, C-2018-300621
Howell v. Met-Ed, C-2018-3006490
Altieri v. Met-Ed, C-2018-3006496
Graziano v. Met-Ed, C-2018-3006633
R. & G. Zimmerman v. Met-Ed, C-2018-3006692
Schutz v. PPL, C-2018-3005659
Bostard v. Met-Ed, C-2018-3002753
Melchiori v. Met-Ed, C-2018-3005573
Hartey v. Met-Ed, C-2018-3005692
Habrial v. Met-Ed, C-2018-3005907
Parks v. Penelec, C-2018-3004227
Landis v. PPL, C-2018-3002142
Conner v. Penelec, C-2018-3005783
Hubel v. DLC, C-2018-3002620
Gardner v. DLC, C-2018-3003550
G. Day v. DLC, C-2018-3003960
Sherry Yewcic v. Penelec, C-2018-3001276

2019

Nickles v. PPL, C-2019-3008215
Brzostowski v. PPL, C-2019-3009320
McCarthy v. Met-Ed, C-2019-3006923
Bolte v. Met-Ed, C-2019-3011287
Brennan v. PPL, C-2019-3007121
Maloney v. Met-Ed, C-2019-3007460
Alan Andrews v. PPL, C-2019-3008770

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2019 Cont'd

Hoffman v. PPL, C-2019-3010414
W. Zimmerman v. Met-Ed, C-2019-3007568
Macey v. WPP, C-2019-3012705
McDarby v. MetEd, C-2019-3007312
Chenosky v. Met-Ed, C-2019-3007622
J. Codella v. PPL, C-2019-3010437
Conerly v. Met-Ed, C-2019-3006936
Breece v. Met-Ed, C-2019-3007216
Paxson v. Met-Ed, C-2019-3007459
Giamoni v. Met-Ed, C-2019-3007637
Garrett v. Met-Ed, C-2019-3007685
Zonca v. Met-Ed, C-2019-3007961
Houck v. Met-Ed, C-2019-3007964
Cumming v. Met-Ed, C-2019-3007995
McKenrick v. Met-Ed, C-2019-30079980
Mousios and Cunning v Met-Ed, C-2019-3007989
Platt v. Met-Ed, C-2019-3013745
Toffey v. PPL, C-2019-3006931
Savannah v. WPP, C-2019-3007054
Scamacca v. PPL, C-2019-3007306
Esposito v. PPL, C-2019-3007334
Freda v. PPL, C-2019-3007408
Hughes v. PPL, C-2019-3007631
Toleno v. PPL, C-2019-3007821
Faut v. Met-Ed, C-2019-3009213
Denlinger v. PPL, C-2019-3014786

Appendix C

Peer-reviewed

Radiat Res. 1987 May;110(2):219-31.

Microwave Effects on Plasmid DNA

J L Sagripanti, M L Swicord, C C Davis

PMID: 3575652

Abstract

The exposure of purified plasmid DNA to microwave radiation at nonthermal levels in the frequency range from 2.00 to 8.75 GHz produces **single- and double-strand breaks** that are detected by agarose gel electrophoresis. Microwave-induced damage to DNA depends on the presence of small amounts of copper. This effect is dependent upon both the microwave power and the duration of the exposure. Cuprous, but not cupric, ions were able to mimic the effects produced by microwaves on DNA.

Source: https://pubmed.ncbi.nlm.nih.gov/3575652/

Bioelectromagnetics. 1992;13(4):247-59.

Effects of continuous and pulsed 2450-MHz radiation on spontaneous lymphoblastoid transformation of human lymphocytes in vitro.

Czerska EM[1], Elson EC, Davis CC, Swicord ML, Czerski P.

Author information

1 Center for Devices and Radiological Health, Food and Drug Administration, Rockville, Maryland.

Abstract

Normal human lymphocytes were isolated from the peripheral blood of healthy donors. One-ml samples containing (10(6)) cells in chromosome medium 1A were exposed for 5 days to conventional heating or to continuous wave (CW) or pulsed wave (PW) 2450-MHz radiation at non-heating (37 degrees C) and various heating levels (temperature increases of 0.5, 1.0, 1.5, and 2 degrees C). The pulsed exposures involved 1-microsecond pulses at pulse repetition frequencies from 100 to 1,000 pulses per second at the same average SAR levels as the CW exposures. Actual average SARs ranged to 12.3 W/kg. Following termination of the incubation period, spontaneous lymphoblastoid transformation was determined with an image analysis system. The results were compared among each of the experimental conditions and with sham-exposed cultures. At non-heating levels, CW exposure did not affect transformation. At heating levels both conventional and CW heating enhanced transformation to the same extent and correlate with the increases in incubation temperature. PW exposure enhanced transformation at non-heating levels. This finding is significant (P less than .002). At heating levels PW exposure enhanced transformation to a greater extent than did conventional or CW heating. This finding is significant at the .02 level. We conclude that PW 2450-MHz radiation acts differently on the process of lymphoblastoid transformation in vitro compared with CW 2450-MHz radiation at the same average SARs.

PMID: 1510735 DOI: 10.1002/bem.2250130402

[Indexed for MEDLINE]

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SECURITY CLASSIFICA

REPORT DOCUMENTATION PAGE

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(U) Effects of Pulsed and CW 2450 MHz Radiation on Transformation and Chromosomes of Human Lymphocytes in vitro

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Microwaves, Lymphocytes, Transformation, Chromosomes
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19 ABSTRACT (Continue on reverse if necessary and identify by block number)

This report describes the results of research in the following areas: Whether spontaneous or phytohemagglutinin-induced transformation of human lymphocytes in vitro is affected by exposure to continuous wave (CW) or pulsed wave (PW) 2450 MHZ microwaves. Conclusion : it is affected -by PW in a non-thermal way.
Comparison of CW and PW microwave exposure at the same average specific absorption rate (SAR) - PW is markedly different and acts in a non-heating way.
Comparison of effects obtained by microwave and conventional heating needed to elevate the sample temperature by 0.5,1.0,1.5, and 2.0°C. Conclusion: CW microwaves and conventional heating produce the same effects, PW exposure behaves differently.
To determine whether chromosomal aberrations are induced under the conditions of the experiment. Conclusion: they are not.

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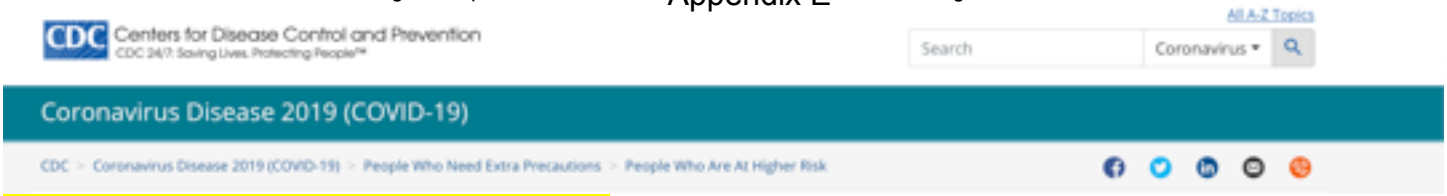

Groups at Higher Risk for Severe Illness

COVID-19 is a new disease and there is limited information regarding risk factors for severe illness. Based on currently available information and clinical expertise, **older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19.**

We are learning more about COVID-19 every day; CDC will update the advice below as new information becomes available.

Actions you can take based on your conditions and other risk factors

Conditions and Other Risk Factors
- Asthma
- Chronic lung disease
- Diabetes
- Serious heart conditions
- Chronic kidney disease being treated with dialysis
- Severe obesity
- **People aged 65 years and older**
- People in nursing homes or long-term care facilities
- **Immunocompromised**
- Liver disease

People aged 65 years and older

Older adults, 65 years and older, are at higher risk for severe illness and death from COVID-19.

Actions to take

- Take your medications for any underlying health conditions exactly as prescribed.
- Follow the advice of your healthcare provider.
- Develop a care plan that summarizes your health conditions and current treatments.
- Prepare yourself to stay home for long periods using this checklist.

Why you might be at higher risk

Although COVID-19 can affect any group, the older you are, the higher your risk of serious disease. Eight out of 10 deaths reported in the U.S. have been in adults 65 years or older; risk of death is highest among those 85 years or older. **The immune systems of older adults weaken with age, making it harder to fight off infections. Also, older adults commonly have chronic diseases that can increase the risk of severe illness from COVID-19.**

Immunocompromised

Many conditions and treatments can cause a person to have a weakened immune system (immunocompromised), including cancer treatment, bone marrow or organ transplantation, immune deficiencies, HIV with a low CD4 cell count or not on HIV treatment, and prolonged use of corticosteroids and other immune weakening medications. [Emphasis added.]

Actions to take

- If you are immunocompromised, continue any recommended medications or treatments and follow the advice of your healthcare provider.
- Call your healthcare provider if you have concerns about your condition or feel sick.

Why you might be at higher risk

People with a weakened immune system have reduced ability to fight infectious diseases, including viruses like COVID-19. Knowledge is limited about the virus that causes COVID-19, but based on similar viruses, there is concern that immunocompromised patients may remain infectious for longer than other COVID-19 patients.

Page last reviewed: April 17, 2020
Content source: National Center for Immunization and Respiratory Diseases (NCIRD), Division of Viral Diseases

[Emphasis added.]

Source:
https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/groups-at-higher-risk.html

People with Disabilities

COVID-19 is a new disease and we are still learning how it spreads, the severity of illness it causes, and to what extent it may spread in the United States.

Disability alone may not be related to higher risk for getting COVID-19 or having severe illness. Most people with disabilities are not inherently at higher risk for becoming infected with or having severe illness from COVID-19. **However, some people with disabilities might be at a higher risk of infection or severe illness because of their underlying medical conditions.** All people seem to be at higher risk of severe illness from COVID-19 if they have serious underlying chronic medical conditions like chronic lung disease, a serious heart condition, or a **weakened immune system**. Adults with disabilities are three times more likely than adults without disabilities to have heart disease, stroke, diabetes, or cancer than adults without disabilities.

You should talk with your healthcare provider if you have a question about your health or how your health condition is being managed.

Disability Groups and Risk

If you have one of the disability types listed below, you might be at increased risk of becoming infected or having unrecognized illness. You should discuss your risk of illness with your healthcare provider.

- People who have limited mobility or who cannot avoid coming into close contact with others who may be infected, such as direct support providers and family members
- **People who have trouble understanding information or practicing preventive measures, such as hand washing and social distancing**
- **People who may not be able to communicate symptoms of illness**

[Emphasis added.]

Source:

https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-disabilities.html

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
AL	Birmingham	Southern Company Services, Inc.	Deploy five integrated smart grid technology systems that enhance energy efficiency, cyber security, distribution and transmission line automation, and smart power substations that will reduce energy load and save money for consumers. Will also benefit customers in FL, GA, MS, NC and SC.	$164,527,160	$165,603,272	$330,130,432	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-SouthernCompany.JPG
Alabama Total				$164,527,160	$165,603,272	$330,130,432	
AR	Forrest City	Woodruff Electric	Install smart meters for more than 13,000 electric cooperative customers that will provide time-of-use data, help monitor demand, and reduce outages.	$2,357,520	$2,658,480	$5,016,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-WoodruffElectric.JPG
Arkansas Total				$2,357,520	$2,658,480	$5,016,000	
AZ	Tempe	Salt River Project	Expand the utility's smart meter network, adding an additional 540,000 meters, a customer portal, and dynamic pricing that will provide consumers real-time information on energy usage and prices that they can use to reduce their energy bills.	$56,859,359	$57,144,359	$114,003,718	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-SaltRiverProject.JPG
	Benson	Southwest Transmission Cooperative, Inc.	Upgrade and automate the transmission, distribution and customer service systems, including smart meters for more than 44,150 customers and the installation of communication and digital infrastructure to support the two-way flow of information between the utility and its customers.	$32,244,485	$32,244,485	$64,488,970	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-SouthwestTransmission%20Coop.JPG
	Ft. Defiance	Navajo Tribal Utility Association	Install a smart grid network and data management system for all of its 38,000 customers. Integrate the smart grid system as part of the distribution network, which will help quickly identify any system outages. Will also benefit customers in NM and UT.	$4,991,750	$5,620,099	$10,611,849	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Navajo.JPG
Arizona Total				$94,095,594	$95,008,943	$189,104,537	
CA	Sacramento	Sacramento Municipal Utility District	Install a comprehensive regional smart grid system from transmission to the customer that includes 600,000 smart meters, dynamic pricing, 100 electric vehicle charging stations and 50,000 demand response controls including programmable smart thermostats, home energy management systems.	$127,506,261	$180,230,823	$307,737,084	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Sacramento.JPG
	Burbank	Burbank Water and Power	Deploy multiple integrated smart grid technologies, including 51,000 electric smart meters and a connected smart meter network for water usage, Customer Smart Choice, Energy Demand Management programs, and enhanced grid security systems.	$20,000,000	$42,650,755	$62,650,755	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Burbank.JPG
	San Diego	San Diego Gas and Electric Company	Implement an advanced wireless communications system to provide connection for 1,400,000 smart meters, enable dynamic pricing, and examples of smart equipment that will allow increased monitoring, communication, and control over the electrical system.	$28,115,052	$31,312,593	$59,427,645	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-SanDiegoGasElectrci.JPG
	Glendale	City of Glendale Water and Power	Install 84,000 smart meters and a meter control system that will provide customers access to data about their electricity usage and enable dynamic rate programs.	$20,000,000	$31,302,105	$51,302,105	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Glendale.JPG
	Anaheim	City of Anaheim	Upgrade and enhance the city's smart grid network and demand response systems, including installing 35,000 residential meters, as well as security and data systems, which will help reduce peak load and line losses.	$5,896,025	$6,271,025	$12,167,050	http://www.energy.gov/recovery/smartgrid_maps/CityOFAnaheim.JPG

Source: https://www.energy.gov/sites/prod/files/SGIG%20Awards%20%20By%20State%202011%2011%2015.pdf

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
	Modesto	Modesto Irrigation District	Install 4,000 smart meters, enhance the electricity distribution system to help reduce peak demand and overall system losses, and developing improved customer service programs including dynamic pricing, billing system modifications, and education and outreach efforts.	$1,493,149	$4,522,927	$6,016,076	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Modesto.JPG
California Total				$203,010,487	$296,290,228	$499,300,715	
CO	Fort Collins	City of Fort Collins Utilities	Install 79,000 smart meters and in-home demand response systems including in-home displays, smart thermostats and air conditioning and water heater control switches, automate transmission and distribution systems, and enhance grid security.	$18,101,263	$18,101,263	$36,202,526	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-FortCollins.JPG
	Pueblo	Black Hills/Colorado Electric Utility Co.	Install 42,000 smart meters and communications infrastructure that will help facilitate meter reading and provide a pilot for a dynamic pricing program.	$6,142,854	$6,142,854	$12,285,708	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-BlackHillColoradoElectric.JPG
Colorado Total				$24,244,117	$24,244,117	$48,488,234	
CT	Norwich	Connecticut Municipal Electric Energy Cooperative	Build a regional smart meter network infrastructure including 5 municipal utilities and at least 13,000 meters that will allow customers to control their electricity use through time-varying rates and control, communications, and management systems.	$9,188,050	$9,188,050	$18,376,100	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-ConnecticutMunicipalElectricCoop.JPG
Connecticut Total				$9,188,050	$9,188,050	$18,376,100	
DC	Washington	Potomac Electric Power Company (PEPCO)	In the Maryland service area, install 570,000 smart meters with network interface; institute dynamic pricing programs, and deploy distribution automation and communication infrastructure technology to enhance grid operations.	$104,780,549	$104,780,549	$209,561,098	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-PEPCODC.JPG
	Washington	Potomac Electric Power Company (PEPCO)	Install 280,000 smart meters equipped with the network interface, institute dynamic pricing programs, and deploy distribution automation and communication infrastructure technology to reduce peak load demand and improve grid efficiency. Will also benefit customers in MD.	$44,580,549	$44,580,549	$89,161,098	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-PEPCODC.JPG
Washington DC Total				$149,361,098	$149,361,098	$298,722,196	
FL	Miami	Florida Power & Light Company	Energy Smart Florida is a comprehensive project to advance implementation of the Smart Grid, including installing over 2.6 million smart meters, 9,000 intelligent distribution devices, 45 phasors, and advanced monitoring equipment in over 270 substations.	$200,000,000	$378,963,325	$578,963,325	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-FloridaPowerandLight.JPG
	Lakeland	Lakeland Electric	Install more than 125,000 smart meters network for residential, commercial and industrial electric customers across the utility's service area.	$14,850,000	$20,228,152	$35,078,152	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-LakelandElectric.JPG
	Jacksonville	JEA	Upgrade metering and data management infrastructure; install 3,000 smart meters with two-way communications, introduce a dynamic pricing pilot, enhance the existing IT system, and implement consumer engagement software to provide consumers with detailed energy use data.	$13,031,547	$13,173,344	$26,204,891	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-JEA.JPG

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
	Leesburg	City of Leesburg, Florida	Enable new energy efficiency and conservation programs to all 23,000 electric consumers through deployment of smart meter networks, energy management for municipal buildings, integrated distributed generation, and new substation power transformer with enhanced monitoring and control. Key consumer initiatives include time differentiated rates and demand response options for reducing peak load.	$9,748,812	$9,748,813	$19,497,625	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Leesburg.JPG
	Tallahassee	City of Tallahassee	Implement a comprehensive demand response program, including smart thermostats and advanced load control systems, that will target residential and commercial customers and lead to an estimated 35 MW reduction in peak power.	$8,890,554	$8,890,554	$17,781,108	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Tallahassee.JPG
	Quincy	Talquin Electric Cooperative, Inc.	Install a smart meter network system for 56,000 residential and commercial customers in a mainly rural, four-county service area in North Florida. Also integrate an outage management system and geographic information as part of the Smart Grid.	$8,100,000	$8,100,000	$16,200,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Talquin.JPG
	Orlando	Atheros Communications Inc.	Modify existing power line communications to enhance smart grid functionality.	$4,554,800	$4,554,800	$9,109,600	No Map
	Quincy	City of Quincy, FL	Deploy a smart grid network across the entire customer base, including two-way communication and dynamic pricing to reduce utility bills.	$2,471,041	$2,471,041	$4,942,082	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Quincy.JPG
Florida Total				$261,646,754	$446,130,029	$707,776,783	
GA	Marietta	Cobb Electric Membership Corporation	Deploy 190,000 smart meters, covering 100 percent of the utility's customer base. Implement communication infrastructure and load control switches, using state-of-the-art interoperable systems, servers, and data management technologies.	$16,893,836	$16,893,836	$33,787,672	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-CobbElectric.JPG
	Atlanta	Municipal Electric Authority of Georgia	Install information technology and smart grid upgrades throughout the system, including on substations, routers, and network terminal units, to reduce peak demand and system maintenance costs.	$12,267,350	$12,267,350	$24,534,700	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-MunicipalElectrciAuthority.JPG
	Tucker	Georgia System Operations Corporation Inc.	Upgrade computer systems to instantaneously and automatically communicate information about disruptions or changes in flow on the grid, enhancing reliability and security of the grid; and to use digital controls to manage and modify electricity demand.	$6,456,501	$6,456,502	$12,913,003	No Map
	McCaysville	Tri State Electric Membership Corporation	Install more than 15,000 smart meters to enable consumers to make use of dynamic pricing options. Expand line monitoring for improved outage detection across the service area. Will also benefit customers in TN.	$1,138,060	$1,290,394	$2,428,454	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-TriState.JPG
Georgia Total				$36,755,747	$36,908,082	$73,663,829	
GU	Hagatna	Guam Power Authority	Deploy 46,000 smart meters to all of the utility's customers, install automation technologies on the electric distribution system, and implement the infrastructure needed to support a two-way flow of energy and information.	$16,603,507	$16,603,507	$33,207,014	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-GuamPowerAuthority.JPG
Guam Total				$16,603,507	$16,603,507	$33,207,014	

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
HI	Oahu	Hawaii Electric Co. Inc.	Automate high load distribution circuits feeding eastern Oahu, reducing outage duration and community impacts. Enable workforce retraining and preserve jobs through cross-training and creation of new skill sets within the utility.	$5,347,598	$5,347,598	$10,695,196	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Hawaii.JPG
Hawaii Total				$5,347,598	$5,347,598	$10,695,196	
IA	Akeney	Iowa Association of Municipal Utilities	75 consumer-owned utilities, serving over 96,000 customers in 3 states, will implement a broad based load control and dynamic pricing program using smart thermostats and web based energy portals.	$5,000,000	$7,531,203	$12,531,203	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-IowaAssoc.JPG
Iowa Total				$5,000,000	$7,531,203	$12,531,203	
ID	Boise	Idaho Power Company	Modernize the electric transmission and distribution infrastructure, including deploying a smart meter network for all 475,000 customers throughout the service area and implementing an outage management system and irrigation load control program that will reduce peak and overall energy use and improve system reliability. Will also benefit customers in OR.	$47,000,000	$47,000,000	$94,000,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-IdahoPower.JPG
	Boise	M2M Communications	Install smart grid-compatible irrigation load control systems in California's central valley agricultural area in order to reduce peak electric demand in the state.	$2,171,710	$2,171,710	$4,343,420	No Map
Idaho Total				$49,171,710	$49,171,710	$98,343,420	
IL	Naperville	City of Naperville, Illinois	Deploy more than 57,000 smart meters and install the infrastructure and software necessary to support and integrate various smart grid functions and the two-way flow of information between the utility and customers.	$10,994,110	$10,994,110	$21,988,220	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-CityofNaperville.JPG
Illinois Total				$10,994,110	$10,994,110	$21,988,220	
IN	Indianapolis	Indianapolis Power and Light Company	Install more than 28,000 meters, including commercial, industrial and residential customers, provide energy use information to customers, improve service restoration and efficiency, and enable two-way communications and control capabilities for the grid.	$20,000,000	$28,900,000	$48,900,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-IndianapolisPowerLight.JPG
	Carmel	Midwest Independent Transmission System Operator	Install, test, integrate and monitor 150 phasor measurement units in strategic locations across the Midwest on independent transmissions system operators, which will improve the energy dispatching, system reliability and planning capabilities. Will also benefit customers in IA, IL, MI, MN, MO, MT, ND, OH, PA, SD, and WI.	$17,271,738	$17,271,738	$34,543,476	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-MidwestISO.JPG
	Auburn	City of Auburn, IN	Integrate and modernize multiple components within the electrical system, including installing a smart meter network, enhancing reliable and fast communication capabilities, upgrading cyber security technologies, expanding grid monitoring and improving responses to power outages.	$2,075,080	$2,075,080	$4,150,160	http://www.energy.gov/recovery/smartgrid_maps/CityOfAuburn.JPG
Indiana Total				$39,346,818	$48,246,818	$87,593,636	
KS	Topeka	Westar Energy, Inc.	Implement technologies to transition the community into a smart energy city, including deploying 48,000 smart meters, advanced distribution automation equipment, smart grid management software, and web-based customer engagement tools that will empower consumers to reduce their energy use and limit peak energy demand.	$19,041,565	$20,249,184	$39,290,749	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-WestarEnergy.JPG

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
	Hays	Midwest Energy Inc.	Install new micro-processor based protective relays and communications equipment at Midwest Energy's Knoll Substation to increase transmission system reliability, enhance synchrophasor measurement and concentration, and facilitate the integration of renewable energy.	$712,257	$712,257	$1,424,514	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-MidwestEnergy.JPG
Kansas Total				$19,753,822	$20,961,441	$40,715,263	
KY	Somerset	South Kentucky Rural Electric Cooperative Corporation	Upgrade the electric metering system to a smart meter network for more than 66,000 families and businesses in rural Kentucky.	$9,538,234	$10,097,981	$19,636,215	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-SouthKentucky.JPG
Kentucky Total				$9,538,234	$10,097,981	$19,636,215	
LA	Pineville	Cleco Power LLC	Install a smart metering network for all of the utility's customers - over 275,000 meters - that will enable customer interaction and distribution automation.	$20,000,000	$49,026,089	$69,026,089	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-ClecoPower.JPG
	Lafayette	Lafayette Consolidated Government, LA	Install more than 57,000 smart meters to reach the full service territory with two-way communications, enable consumers to reduce energy use with smart appliances and dynamic pricing, and automate the electric transmission and distribution systems to improve monitoring and reliability.	$11,630,000	$11,630,000	$23,260,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Lafayette.JPG
	New Orleans	Entergy New Orleans, Inc.	Install more than 11,000 residential smart meters and in-home display devices, coupled with dynamic pricing, to reduce energy use and electricity costs for low income families.	$4,996,968	$4,996,968	$9,993,936	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-EntergyNewOrleans.JPG
	New Orleans	Entergy Services, Inc.	Build a foundation for increased grid monitoring, including the installation of 18 new phasor measurement units and training and educating grid operators and engineers on the use of phasor technology to improve critical decision making on grid operations.	$4,611,201	$4,611,201	$9,222,402	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Entergy.JPG
	Ruston	City of Ruston, Louisiana	Develop a fully functioning Smart Grid by improving customer systems, automating electricity distribution, and deploying a smart meter network and data management system. The smart grid will reduce consumer energy use and limit system losses.	$4,331,650	$4,331,650	$8,663,300	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Ruston.JPG
Louisiana Total				$45,569,819	$74,595,908	$120,165,727	
MA	Danvers	Honeywell International, Inc	Provide automated peak pricing response for almost 700 commercial and industrial customers. Fully automated demand response will reduce the electricity load during times of peak demand.	$11,384,363	$11,384,363	$22,768,726	No Map
	Norfolk	NSTAR Electric Company	Expand the system's distribution automation capabilities by implementing "self-healing" functions on the grid that will reduce the impact of outages on the system and the power quality and efficiency of the distribution grid.	$10,061,883	$10,061,883	$20,123,766	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-NSTARElectric.JPG
	Danvers	Town of Danvers, MA	Deploy more than 12,000 smart meters for the full customer base, upgrade cyber security systems, and automate outage management and other distribution operations with the goal of achieving full interoperability between all of the various systems.	$8,476,800	$8,476,800	$16,953,600	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-TownOFDanvers.JPG

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
	Holyoke	ISO New England, Incorporated	Install 30 synchrophasors and connect the independent systems operators in New England to increase response time to real time system events and reduce congestion by being able to collect and share synchrophasor and disturbance data with other regions for wide area monitoring. Will also benefit customers in CT, ME, NH, RI, and VT.	$7,993,714	$10,093,714	$18,087,428	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-ISONewEngland.JPG
	Marblehead	Marblehead Municipal Light Department	Install 10,000 smart meters and a pilot program to assess the effectiveness of real-time pricing and automated load management.	$1,346,175	$1,346,175	$2,692,350	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-MarbleheadMunicipalLight.JPG
	West Tisbury	Vineyard Energy Project	Deploy a range of smart grid technologies, including smart appliances, an interface for plug-in hybrid electric vehicles, and a demand response program that will help enable the integration of solar and wind resources onto the grid.	$567,250	$567,250	$1,134,500	No Map
Massachusetts Total				$39,830,185	$41,930,185	$81,760,370	
MD	Baltimore	Baltimore Gas and Electric Company	Deploy a smart meter network and advanced customer control system for 1.1 million residential customers that will enable dynamic electricity pricing. Expand the utility's direct load control program, which will enhance grid reliability and reduce congestion.	$200,000,000	$251,814,234	$451,814,234	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-BaltimoreGasElectric.JPG
Maryland Total				$200,000,000	$251,814,234	$451,814,234	
ME	Augusta	Central Maine Power Company	Install a smart meter network for all residential, commercial and industrial customers in the utility's service territory - approximately 650,000 meters.	$95,858,307	$95,858,307	$191,716,614	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-CentralMaine.JPG
Maine Total				$95,858,307	$95,858,307	$191,716,614	
MI	Detroit	Detroit Edison Company	The SmartCurrents program includes three projects: deploy a large-scale network of 660,000 smart meters; implement the Smart Home program which will provide customer benefits such as dynamic pricing to 5,000 customers and smart appliances to 300 customers.	$83,828,878	$83,828,878	$167,657,756	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-DetroitEdisonCo.JPG
	Benton Harbor	Whirlpool Corporation	Support the manufacturing of smart appliances to accelerate the commercialization of residential appliances capable of communicating over a home network with other smart technologies. These smart appliances will allow consumers to defer or schedule their energy use, which can lower consumer costs and reduce peak electricity demand.	$19,330,000	$19,766,275	$39,096,275	No Map
Michigan Total				$103,158,878	$103,595,153	$206,754,031	
MN	Duluth	ALLETE Inc., d/b/a Minnesota Power	Expand the implementation of Minnesota Power's existing smart meter network by deploying an additional 8,000 meters and new measurement and automation equipment. Will begin a dynamic pricing program.	$1,544,004	$1,544,004	$3,088,008	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-ALLETEMNPower.JPG
Minnesota Total				$1,544,004	$1,544,004	$3,088,008	
MO	Fulton	City of Fulton, Missouri	Replace more than 5,000 current electric meters with a smart meter network that includes a dynamic pricing program to reduce consumer energy use.	$1,527,641	$1,527,641	$3,055,282	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Fulton.JPG
Missouri Total				$1,527,641	$1,527,641	$3,055,282	
MS	Hattiesburg	South Mississippi Electric Power Association (SMEPA)	Install 240,000 smart meters and smart grid infrastructure across a range of SMEPA's member cooperatives, providing increased communication and monitoring for the grid.	$30,563,967	$30,754,038	$61,318,005	http://www.smartgrid.gov/project/south_mississippi_electric_power_association_advanced_metering_infrastructure_and_associated
Mississippi Total				$30,563,967	$30,754,038	$61,318,005	

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
NC	Charlotte	Duke Energy Business Services LLC	Comprehensive grid modernization for Duke Energy's Midwest electric system encompassing Ohio, Indiana, and Kentucky. Includes installing open, interoperable, two-way communications networks, deploying smart meters for 1.4 million customers, automating advanced distribution applications, developing dynamic pricing programs, and supporting the deployment of plug-in electric vehicles. Will also benefit customers in IN and OH.	$200,000,000	$355,706,307	$555,706,307	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-DukeEnergyBusinessServices.JPG
	Raleigh	Progress Energy Service Company, LLC	Build a green Smart Grid virtual power plant through conservation, efficiency and advanced load shaping technologies, including installation of over 160,000 meters across its multi-state service area. Will also benefit customers in SC.	$200,000,000	$320,185,889	$520,185,889	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-ProgressEnergy.JPG
	Charlotte	Duke Energy Carolinas, LLC	Install 45 phasor measurement units in substations across the Carolinas and upgrade communications infrastructure and technology at the corporate control center.	$3,927,899	$3,927,899	$7,855,798	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-DukeEnergyCarolinas.JPG
North Carolina Total				$403,927,899	$679,820,095	$1,083,747,994	
NE	West Point	Cuming County Public Power District	Install communications infrastructures and deploy control software to enable Smart Grid distribution functions for Cuming County Public Power District and Stanton County Public Power District distribution systems.	$1,874,994	$1,874,994	$3,749,988	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-CUmiongPublicPowerDistrict.JPG
	Stanton	Stanton County Public Power District	Extend existing smart meter network to all metering points by deploying an additional 2,400 smart meters, along with the associated computer software and hardware and data collection systems.	$397,000	$397,000	$794,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-StantonCountyPublicPower.JPG
Nebraska Total				$2,271,994	$2,271,994	$4,543,988	
NH	Plymouth	New Hampshire Electric Cooperative	Modernize the distribution and metering system by deploying advanced meters for all 75,000 members and installing a wide area telecom network consisting of microwave and fiber links throughout the service territory.	$15,815,225	$19,329,720	$35,144,945	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-NewHampshireElectricCoop.JPG
New Hampshire Total				$15,815,225	$19,329,720	$35,144,945	
NJ	Mays Landing	Atlantic City Electric Company	Deploy 25,000 direct load control devices, intelligent grid sensors, automation technology, and communications infrastructure to enhance grid reliability, optimize the grid's operations, and empower consumers to better manage and control their energy usage. Will also benefit customers in DC and MD.	$18,700,000	$18,700,000	$37,400,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-AtlanticCityElectric.JPG
New Jersey Total				$18,700,000	$18,700,000	$37,400,000	
NV	Las Vegas	NV Energy, Inc.	Integrate smart grid technologies, including dynamic pricing, customer communications and in-home networks, grid monitoring, distribution automation, distributed renewables, and electric vehicles, including the installation of a network of 1,300,000 smart meters.	$138,877,906	$138,877,906	$277,755,812	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-NVEnergy.JPG
Nevada Total				$138,877,906	$138,877,906	$277,755,812	
NY	New York	Consolidated Edison Company of New York, Inc.	Deploy a wide-range of grid-related technologies, including automation, monitoring and two-way communications, to make the electric grid function more efficiently and enable the integration of renewable resources and energy efficient technologies. Will also benefit customers in NJ.	$136,170,899	$136,170,899	$272,341,798	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-ConsolidatedEdisonNY.JPG

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
	Rensselaer	New York Independent System Operator, Inc.	Deploy a range of smart grid technologies, including 35 new phasor measurement units and 19 phasor data concentrators, across NY to allow area-wide control, and an open, flexible, interoperable, secure, and expandable communications system that will work in concert with the existing control and monitoring systems.	$37,828,825	$37,881,908	$75,710,733	No Map
New York Total				$173,999,724	$174,052,807	$348,052,531	
OH	Akron	FirstEnergy Service Company	Modernize the electrical grid and reduce peak energy demand by leveraging the crosscutting nature of different smart grid technologies, including significant communication and information management systems, deploying a smart meter network and automating the distribution system. Will also benefit customers in PA.	$57,470,137	$57,470,137	$114,940,274	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-FirstEnergy.JPG
	Wadsworth	City of Wadsworth, OH	Deploy smart meters to more than 12,500 of the city's customers, implement the communications infrastructure needed for two-way communications, automate distribution and substation operations, enhance cyber security systems, and prepare the grid for the broader deployment of plug-in hybrid electric vehicle charging.	$5,411,769	$5,411,769	$10,823,538	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Wadsworth.JPG
Ohio Total				$62,881,906	$62,881,906	$125,763,812	
OK	Oklahoma City	Oklahoma Gas and Electric Company	Deploy a smart grid network that will provide 771,000 meters to 100% of its customers, combining in-home technology with dynamic price response programs, and implement advanced distribution automation technologies that will facilitate "self-healing" and power restoring properties on the grid. Will also benefit customers in AR.	$130,000,000	$163,201,332	$293,201,332	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-OklahomaGasElectric.JPG
Oklahoma Total				$130,000,000	$163,201,332	$293,201,332	
OR	Portland	Pacific Northwest Generating Cooperative	Implement a smart grid system, including more than 95,000 smart meters, substation equipment, and load management devices, that will integrate 15 electric cooperatives across 4 states using a central data collection software system hosted by the Pacific Northwest Generating Cooperative. Will also benefit customers in WA, ID, NV, UT and MT.	$19,576,743	$19,576,743	$39,153,486	No Map
	Newport	Central Lincoln People's Utility District	Provide two-way communication between the utility and all of its 38,000 customers through a smart grid network and other in-home energy management tools. Deploy smart grid communication and control technology to optimize distribution system reliability and efficiency, restore energy quickly following outages, and empower consumers to reduce their energy use.	$9,936,950	$9,936,950	$19,873,900	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-CentralLincoln.JPG
Oregon Total				$29,513,693	$29,513,693	$59,027,386	
PA	Philadelphia	PECO Energy Company	Deploy smart meters to all 600,000 customers, upgrade communication infrastructure to support a smart meter network, install 7 "intelligent" substations, and accelerate deployment of more reliable and secure smart grid technologies that will reduce peak energy load and increase cost savings.	$200,000,000	$236,635,677	$436,635,677	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-PECOEnergy.JPG

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
	Allentown	PPL Electric Utilities Corp.	Deploy a distribution management system and smart grid technologies to monitor and control the grid in real-time, improve system reliability and energy resource optimization, and provide the infrastructure for distributed generation and broader energy efficiency efforts.	$19,054,516	$19,054,516	$38,109,032	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-PPL.JPG
	Norristown	PJM Interconnection, LLC	Deploy over 90 phasor measurement units and other digital monitoring and analysis technologies across 10 states that will provide real-time data on the operating conditions of the transmission system, improving reliability and reducing congestion. Will also benefit customers in IL, IN, KY, MD, MI, NC, NJ, OH, PA, VI, and WV.	$13,698,091	$14,141,981	$27,840,072	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-PJM.JPG
	Wellsboro	Wellsboro Electric Company	Implement the "Smart Choices" project, which will deploy smart meter network systems throughout the utility's service territory.	$431,625	$529,570	$961,195	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-WellsboroElectric.JPG
Pennsylvania Total				$233,184,232	$270,361,744	$503,545,976	
SD	Rapid City	Black Hills Power, Inc.	Install 69,000 smart meters, along with the communications infrastructure, IT software, and equipment necessary to operate a fully functional Smart Grid system in service area. Will also benefit customers in MN and ND.	$9,576,628	$9,576,628	$19,153,256	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-BlackHills.JPG
	Coleman	Sioux Valley Southwestern Electric Cooperative, Inc.	Install a smart grid network across the full customer base - 23,000 smart meters - that will allow for automated electricity readings and additional monitoring of the system in case of outages or disruptions. Will also benefit customers in MN.	$4,016,368	$4,016,368	$8,032,736	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-SiouxValleyEnergy.JPG
South Dakota Total				$13,592,996	$13,592,996	$27,185,992	
TN	Chattanooga	Electric Power Board of Chattanooga	Deploy a smart meter network to all 170,000 utility customers, complete fiber extension construction throughout the service area, automate subtransmission and distribution systems, enable customer systems, and allow modeling for dynamic energy pricing. Will also benefit customers in GA.	$111,567,606	$115,139,956	$226,707,562	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-ElectricPowerBoardOfChattanooga.JPG
	Memphis	Memphis Light, Gas and Water Division	Install digital upgrades, including a high-speed data communication and control system, to the electric distribution system, which will improve power quality, reduce maintenance costs, and serve as the backbone for future smart grid enhancements.	$5,063,469	$8,048,894	$13,112,363	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-MemphisGasWater.JPG
	Knoxville	Knoxville Utilities Board	Deploy smart meters to 3,800 customers and install smart grid communications and substation automation to the service territory in and around the University of Tennessee	$3,585,022	$3,585,022	$7,170,044	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-KnoxvilleUtilitiesBoard.JPG
Tennessee Total				$120,216,097	$126,773,872	$246,989,969	
TX	Houston	CenterPoint Energy	Complete the installation of 2.2 million smart meters and further strengthen the reliability and self-healing properties of the grid by installing more than 550 sensors and automated switches that will help protect against system disturbances like natural disasters.	$200,000,000	$439,187,435	$639,187,435	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-CenterPointEnergy.JPG
	Houston	Reliant Energy Retail Services, LLC	Install a suite of smart meter products, enabling customers to manage their electricity usage, promote energy efficiency, and lower overall energy costs.	$19,839,689	$34,825,374	$54,665,063	No Map

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
	Amarillo	Golden Spread Electric Cooperative, Inc.	Install a network of 70,000 smart meters and associated smart grid equipment, including communication devices in substations and an enhanced cyber security system, that will help manage grid data and quickly restore power following outages.	$17,263,115	$25,894,673	$43,157,788	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-GoldenSpreadElectricCoop.JPG
	Corinth	Denton County Electric Cooperative d/b/a CoServ Electric	Installation of a 140,000 smart meter network that includes meters, two-way communications, computer systems, and a distribution network that will provide accurate, timely information about customer electricity consumption.	$17,205,844	$23,760,452	$40,966,296	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-CoServ.JPG
	El Paso	El Paso Electric	Install distribution automation to increase the monitoring and control of the distribution system and improve power restoration during emergencies. Will also benefit customers in NM.	$1,014,414	$1,181,773	$2,196,187	http://www.smartgrid.gov/project/el_paso_electric_smart_grid_project
Texas Total				$255,323,062	$524,849,707	$780,172,769	
UT	Salt Lake City	Western Electricity Coordinating Council	Install over 250 phasor measurement units across the Western Interconnection and create a communications system to collect data for real-time situational awareness. Improve integrated systems operation across 11 utility organizations and in all or part of 14 western states, enhancing reliability and reducing energy loss. Will also benefit customers in AZ, CA, CO, ID, MT, NM, NV, OR, SD, TX and WA.	$53,890,000	$53,890,000	$107,780,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-WesternElectricity.JPG
Utah Total				$53,890,000	$53,890,000	$107,780,000	
VA	Fredericksburg	Rappahannock Electric Cooperative	Implement digital improvements and upgrades in communication infrastructure, advanced meters, cyber security equipment, and digital automation to reduce peak demand and improve system reliability.	$15,694,097	$15,694,097	$31,388,194	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Rappahannock.JPG
	Manassas	Northern Virginia Electric Cooperative	Expand substation and distribution automation and control, including adding a new two-way communication infrastructure to the existing fiber optic and microwave communications, which will improve system reliability and reduce peak demand.	$5,000,000	$5,000,000	$10,000,000	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-NorthernVirginia.JPG
Virginia Total				$20,694,097	$20,694,097	$41,388,194	
VT	Rutland	Vermont Transco, LLC	Expand the deployment of Vermont smart meters from the current 28,000 to 300,000, implement customer systems such as in-home displays and digitally controlled appliances, secure control systems for substations and generation facilities, and automate the electric distribution and transmission system grids.	$68,928,650	$68,928,650	$137,857,300	No Map
Vermont Total				$68,928,650	$68,928,650	$137,857,300	
WA	Spokane	Avista Utilities	Implement a distribution management system, intelligent end devices, and a communication network to reduce distribution system loses, enable automatic restoration to customers during outages, and allow for the integration of on-site generating resources. Will also benefit customers in ID.	$20,000,000	$20,048,996	$40,048,996	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-AvistaUtilities.JPG
	Everett	Snohomish County Public Utilities District	Install a smart grid framework on the utility side, including a digital telecommunications network, substation automation and a robust distribution system infrastructure, that will allow enable the implementation of future smart grid technologies including	$15,825,817	$15,825,817	$31,651,634	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-SnohomishPUD.JPG
Washington Total				$35,825,817	$35,874,813	$71,700,630	

RECOVERY ACT SELECTIONS FOR SMART GRID INVESTMENT GRANT AWARDS - BY STATE							
HQ State	HQ City	Name of Awardee	Brief Project Description	Recovery Act Funding	Participant Cost Share	Total Project Value	Map of Project Coverage Area
WI	Waukesha	American Transmission Company LLC	Build a fiber optics communications network for high-speed communications to maximize the full capability of phasor measurement networks across ATC's transmission system.	$11,444,180	$11,444,180	$22,888,360	No Map
	Madison	Madison Gas and Electric Company	Install a network of 1,750 smart meters, automate distribution, and install a network of 12 public charging stations and 25 in-home vehicle charging management systems for plug-in hybrid and electric vehicles.	$5,550,941	$5,550,941	$11,101,882	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-MadisonGasElectric.JPG
	Madison	Wisconsin Power and Light Company	Capitalize on current smart meter network by implementing a power factor management system to minimize overload on distribution lines, transformers and feeder segments, reduce distribution waste, and limit unnecessary power generation.	$3,165,704	$3,211,784	$6,377,488	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-WisconsonPowerandLight.JPG
	Waukesha	American Transmission Company LLC	Expand the collection of real time data by installing an additional 3-5 phasor measurement units in geographically diverse sites throughout the ATC electric transmission system in Wisconsin, which will improve monitoring, reduce congestion, and limit cost.	$1,330,825	$1,330,825	$2,661,650	No Map
Wisconsin Total				$21,491,650	$21,537,730	$43,029,380	
WY	Cheyenne	Cheyenne Light, Fuel and Power Company	Install 38,000 smart meters and communications infrastructure that will allow consumers to make use of dynamic pricing to reduce their energy use.	$5,033,441	$5,033,441	$10,066,882	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-Cheyenne.JPG
	Sundance	Powder River Energy Corporation	Develop a new, secure communications and data network throughout the company's service territory, providing additional monitoring and control of critical grid substations and allowing for the broader integration of distributed generation resources.	$2,554,807	$2,554,808	$5,109,615	http://www.smartgrid.gov/sites/default/files/coverage_maps/SmartGridMap-PowederRiverEenergyCorp.JPG
Wyoming Total				$7,588,248	$7,588,249	$15,176,497	
Total Smart Grid Investment Grant Award Value				**$3,425,718,323**	**$4,428,707,448**	**$7,854,425,771**	
The above projects have received awards.							

Source: https://www.energy.gov/sites/prod/files/SGIG%20Awards%20%20By%20State%202011%2011%2015.pdf

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About the PUC

The PUC funds an authorized complement of more than 500 employees, including attorneys, rate and service analysts, auditors, economists, engineers, motor transit and railroad specialists, communications specialists, safety inspectors and enforcement investigators. They work with administrative, fiscal, computer and clerical personnel.

The PUC is funded by assessment of regulated public utilities. Subject to budget approval, the PUC may assess utilities up to three-tenths of one percent of gross intrastate revenue to cover the cost of regulation. All assessments are paid into the General Fund of the State Treasury through the Department of Revenue for use solely by the Commission.

The Public Utility Commission was created by the Pennsylvania Legislative Act of March 31, 1937 (and the Public Utility Law of May 28, 1937), which abolished the Public Service Commission.

The PUC has 12 offices and bureaus reporting to an Executive Director, with its headquarters in Harrisburg. Regional offices are located in Philadelphia, Pittsburgh and Scranton. The regional offices serve as administrative coordinating points for enforcement officers and administrative law judges. The Philadelphia office also hosts employees from the PUC's Bureau of Consumer Services.

Mission Statement

The Pennsylvania Public Utility Commission balances the needs of consumers and utilities; ensures safe and reliable utility service at reasonable rates; protects the public interest; educates consumers to make independent and informed utility choices; furthers economic development; and fosters new technologies and competitive markets in an environmentally sound manner.

TRIB LIVE

TRIBUNE-REVIEW | Wednesday, July 22, 2020 8:18 p.m.

OPINION

Editorial: Does FirstEnergy have too much power?

Crews from West Penn Power at work. TRIBUNE-REVIEW

Utility bills are the kind of thing that can feel a little like extortion.

You can't just tell your water company you have found another option and to please dig up their pipes. Sewer service isn't exactly the kind of thing you can shop around for and find the best deal.

But electricity might be the thing that holds you over a barrel more than anything else. You can't respond to a rate increase the way you would with a higher cable or cellular bill — calling customer service to scale back your package of services. Your options are on or off.

All of which is hard to take under normal circumstances. If you're thinking about the cost of your electricity, you might think about the coal that fires the generators and the salaries of the workers fixing the lines.

What do you think when you hear about bribery?

On Tuesday, federal prosecutors said FirstEnergy Corp. paid more than $60 million in bribe money for a push to bail out nuclear power plants in Ohio. The state's Speaker of the House Larry Householder, four other individuals and the group Generation Now were indicted in the case.

FirstEnergy was not indicted, but according to Cleveland.com, U.S. Attorney for the Southern District of Ohio David DeVillers used careful language at his press conference, saying "no one from that company has of yet been charged."

The nuclear bailout issue was on the table in Pennsylvania, too. Exelon Corp., the other major nuclear electric producer, closed Three Mile Island Unit 1 in 2019 after efforts to get the state Legislature to approve a financial lifeline failed.

So if Akron-based FirstEnergy — parent of West Penn Power, Penelec, Penn Power and Med-Ed — was willing to spend $60 million on the bailout in Ohio, what did they spend on the attempt in Pennsylvania? It's hard to tell, as that massive outlay in Ohio doesn't show up in listed activity.

OpenSecrets.org does note FirstEnergy's 2018 lobbying was its highest in 20 years but shows only $3.1 million in lobbying expenses for 2018 and $1.98 million in 2019 — nowhere near the federal indictment's numbers.

Does all that money mean customers will end up footing the bill — whether for illegal bribery or legal lobbying?

According to acting Pennsylvania Consumer Advocate Tanya McCloskey, the answer is no.

" 'Lobbying' expenses (by a utility) are not recoverable from the ratepayers," she said, adding that a "very detailed review" happens before any request for an increase is approved by the Pennsylvania Public Utilities Commission.

Unfortunately, it isn't up to those ratepayers to decide for themselves whether FirstEnergy is the kind of company they want to patronize or not. Even if you choose a different supplier for your electricity, a FirstEnergy company still could be the utility that gets that electricity through the lines and into your home.

That's something the Pennsylvania Legislature could address. People need more control when they are paying their bills. They need to be real customers, not a commodity.

Because bad things can happen when any one company has too much power.

Categories: Editorials | Opinion

Source: https://triblive.com/opinion/editorial-does-firstenergy-have-too-much-power/

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Firstenergy Nuclear Operating Company to Pay $28 Million Relating to Operation of Davis–Besse Nuclear Power Station

Two Employees and a Contractor Indicted for Making False Statements to the Nuclear Regulatory Commission

WASHINGTON, D.C. – The FirstEnergy Nuclear Operating Company (FENOC), has agreed to pay $28 million in penalties, restitution, and community service projects as part of an agreement to defer prosecution of the company, the Justice Department announced today. Under the terms of the deferred prosecution agreement, FENOC admits that the government can prove that its employees, acting on its behalf, knowingly made false representations to the Nuclear Regulatory Commission (NRC) in the course of attempting to persuade the NRC that its Davis–Besse Nuclear Power Station was safe to operate beyond December 31, 2001. Prasoon Goyal, a design engineer, also accepted and entered into a deferred prosecution agreement with the government.

In addition to these agreements, two former employees and one former contractor of FENOC were charged in a five-count indictment for allegedly preparing and providing false statements to the NRC. It is alleged that David Geisen, Andrew Siemaszko, and Rodney Cook falsely represented to the NRC that past inspections of the plant were adequate to assure safe operation until February or March of 2002. “By misleading the NRC about its prior safety inspections, FENOC failed to meet its regulatory obligations and violated the public's trust," said Assistant Attorney General Sue Ellen Wooldridge for the Justice Department’s Environmental and Natural Resources Division. “The deferred prosecution agreement entered today involves a full admission of responsibility by FENOC and includes a financial penalty that reflects the revenue that FENOC realized by misleading the NRC and delaying required safety inspections at the Davis–Besse facility.” “This has been a long and difficult investigation,” said U.S. Attorney Gregory A. White for the Northern District of Ohio. “I want to thank the Office of Investigations of the Nuclear Regulatory Commission for their hard work and dedication. I hope and trust that the honest assessment of responsibility and the remedial actions taken by both FENOC and the NRC will result in a nuclear industry that is safer and more productive. In order to achieve that goal, everyone must take appropriate action to ensure that submissions to the NRC, upon which they make crucial safety discussions, are accurate and complete in all respects.”

FENOC owns and operates the Davis–Besse Nuclear Power Station, which is located on the southwestern shore of Lake Erie, near Oak Harbor, Ohio. To produce energy, the plant utilizes pressurized water reactors (PWRs) to heat water to ≈600 degrees Fahrenheit through the process of nuclear fission. At that temperature, the reactor coolant water—which is sealed inside a reactor pressure vessel—reaches a pressure of ≈2000 pounds per square inch (psi). The reactor coolant is then used to super-heat steam to drive turbines that generate electricity.

Reactor operators use two systems to control the rate of fission. First, they can raise or lower vertical control rods in the reactor core to absorb the neutrons that drive the reaction. The machinery that raises and lowers the control rods is attached to the reactor vessel head (lid) of the reactor pressure vessel. Nozzles pierce the dome shaped head and the control rods are raised and lowered through those nozzles. Secondly, for fine fission and reactor power control, operators also added (or removed) boric acid from the reactor coolant water. Like the control rods, the boric acid also absorbed neutrons. The Davis–Besse reactor vessel head had 69 nozzles.

In the 1990’s, some PWR’s in power plants, like Davis–Besse, started to develop cracks where the nozzles were welded to the reactor vessel head. This cracking could lead to breaks where control rod nozzles penetrated the steel-walled vessel that contained the nuclear fuel and the pressurized reactor coolant water, resulting in a potentially serious accident that would stress the plants’ safety systems. Engineers predict that a broken nozzle, propelled by reactor coolant at 2000 psi, would violently launch itself out of the reactor vessel head, leaving a hole through which reactor coolant would escape into the containment building.

In August 2001, following reports of nozzle cracks, the NRC issued Bulletin 2001–01, requiring PWR operators to report on their plant’s susceptibility to cracking, the steps they had taken to detect it, and their plans for addressing the problem in the future. Any licensee that did not plan to inspect the reactor vessel head for signs of cracking by December 31, 2001 was required to justify operation beyond that date.

In the months following the issuance of Bulletin 2001–01, FENOC submitted five letters to the NRC, arguing that its past inspections were adequate to assure safe operation until February or March 2002, at which time the plant had a prescheduled shut-down. The indictment charges that in order to persuade the NRC that their plant was safe to operate until the prescheduled shutdown, FENOC engineers and contractors—including Geisen, Siemaszko, and Cook—presented false information in its submissions to the NRC. The indictment further charges that the defendants prepared and submitted false and misleading responses to the NRC’s bulletin and concealed material information, eventually persuading the NRC that Davis–Besse was safe to continue operation until February 15, 2002.

Upon the scheduled shutdown in March 2002, workers discovered a pineapple-sized cavity in the head of the reactor vessel at Davis-Besse. Subsequent analysis showed that this hole was the result of corrosive reactor coolant leaking through a nozzle crack.

In addition to alleging false and misleading statements to the NRC, the indictment alleges that Geisen, Siemaszko, and Cook lied about the extent of inspections done in 1996, 1998, and 2000. Specifically, the indictment alleges that the defendants lied by writing:

That Davis–Besse engineers were able to inspect areas of the reactor vessel head that could not, in fact, be inspected; and That Davis–Besse engineers had completed boric acid corrosion control procedures that had not been completed.

Two of the defendants, Geisen and Siemaszko, are also charged with providing the NRC with photographs bearing captions that falsely indicate generally good conditions for visual inspections.

As a result of the deferred prosecution agreement, FENOC will pay more than $23 million in fines and will spend an additional $4.3 million on community service projects. These projects include a wetlands restoration project at the Ottawa National Wildlife Refuge ($800,000) and improvements to the Visitors Center ($550,000); a communications systems upgrade for the Ottawa County Emergency Management Association ($500,000); a project aimed at developing energy efficient technologies at the University of Toledo, College of Engineering ($500,000); a project to extend the Towpath Trail at the Cuyahoga Valley National Park ($1,000,000); and a project for the Northern Ohio Chapter of Habitat for Humanity for the construction of EPA Energy Star certified homes ($1,000,000).

The investigation and prosecution are being conducted jointly by the Environmental Crimes Section of the Justice Department and by the U.S. Attorney’s Office for the Northern District of Ohio, as well as the NRC Office of Investigations. Special agents of the NRC’s Office of Investigations and a Senior Reactor Inspector from NRC’s Region III ably developed the case and referred it to the Department of Justice. The charges contained in the indictment are merely accusations, and the defendants are presumed innocent unless and until proven guilty.

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06-029

Appendix H-3

Source: https://violationtracker.goodjobsfirst.org/prog.php?parent=firstenergy

Violation Tracker Parent Company Summary

Parent Company Name: FirstEnergy

Ownership Structure: publicly traded (ticker symbol FE)

Headquartered in: Ohio

Major Industry: utilities and power generation

Specific Industry: utilities

Penalty total since 2000: $1,209,669,493

Number of records: 51

Top 5 Offense Groups (Groups Defined)	Penalty Total	Number of Records
environment-related offenses	$1,143,005,274	26
safety-related offenses	$33,785,914	15
employment-related offenses	$32,878,305	10

Top 5 Primary Offense Types	Penalty Total	Number of Records
environmental violation	$1,143,005,274	26
nuclear safety violation	$33,560,000	3
labor relations violation	$27,969,760	5
benefit plan administrator violation	$4,000,000	1
wage and hour violation	$908,545	4

Notes:

Parent-subsidiary linkages are based on relationships current as of the latest revision listed in the Update Log, which may vary from what was the case when a violation occurred. The penalty totals are adjusted to account for the fact that the individual entries below may include both agency records and settlement announcements for the same case; or else a penalty covering multiple locations may be listed in the individual records for each of the facilities. The totals are also adjusted to reflect cases in which federal and state or local agencies cooperated and issued separate announcements of the outcome. Duplicate or overlapping penalty amounts are marked with an asterisk in the list below.

Associated Names:

ALLEGHENY ENERGY; ALLEGHENY ENERGY SUPPLY / ARMSTRONG POWER STA; ALLEGHENY ENERGY SUPPLY / MITCHELL POWER STA; ALLEGHENY ENERGY SUPPLY COHATFIELDS FERRY POWER STA; ALLEGHENY ENERGY SUPPLY COMPANY, LLC, PLEASANTS P; Allegheny Energy, Inc.; FIRST ENERGY / CLEVELAND ELECTRIC ILLUMINATING; FIRST ENERGY / OHIO EDISON; FIRST ENERGY GENERATION; FIRSTENERGY; FIRSTENERGY DBA FIRSTENERGY GENERATION; FIRSTENERGY GENERATION LLC; FIRSTENERGY NUCLEAR OPERATING; ILLUMINATING ;A FIRST ENERGY; JERSEY CENTRAL P [...]

Links:

Subsidy Tracker data on financial assistance to this company by federal, state and local government agencies can be found here.

For an overview of assistance this company is receiving under the CARES Act, see its Covid Stimulus Watch summary page here.

Individual Penalty Records:

Click on the company or penalty amount for more information on each case.
Download results as CSV or XML

Company	Primary Offense Type	Year	Agency	Penalty Amount
Ohio Edison Company	environmental violation	2005	EPA	$1,133,500,000
FirstEnergy Nuclear Operating Company	nuclear safety violation	2006	NRC	$28,000,000
First Energy/Cleveland Electric Illuminating Company	labor relations violation	2001	NLRB	$27,382,600
Ohio Edison	environmental violation	2005	MULTI-AG	(*) $18,900,000
FIRST ENERGY CORP	environmental violation	2010	EPA	$8,500,000
OHIO EDISON CO, ET AL	environmental violation	2005	EPA	(*) $8,005,000
FirstEnergy Nuclear Operating Company	nuclear safety violation	2005	NRC	$5,450,000
Allegheny Energy, Inc.	benefit plan administrator violation	2007	private lawsuit-federal	$4,000,000
FirstEnergy Corp.	wage and hour violation	2014	WHD	$934,742
Jersey Central Power and Light Company, A First Energy Company	labor relations violation	2003	NLRB	$495,000
FirstEnergy Corp. (Akron, OH)	environmental violation	2013	EPA	$214,604
Jersey Central Power & Light	wage and hour violation	2011	WHD	$182,640
FirstEnergy Corp. (Akron, OH)	environmental violation	2013	EPA	$174,605
FirstEnergy Corp. (Akron, OH)	environmental violation	2013	EPA	$166,848
FirstEnergy Nuclear Operating Company	nuclear safety violation	2000	NRC	$110,000
FirstEnergy Corp.	wage and hour violation	2013	WHD	$79,154
ILLUMINATING CO - A FIRST ENERGY COMPANY	workplace safety or health violation	2002	OSHA	$70,000
FIRSTENERGY GENERATION LLC	workplace safety or health violation	2017	OSHA	$65,964
First Energy Corporation	labor relations violation	2003	NLRB	$65,000
ALLEGHENY ENERGY SUPPLY COMPANY, LLC, PLEASANTS P	environmental violation	2011	EPA	$60,000
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2010	EPA	$59,176
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2010	EPA	$59,176
Jersey Central Power & Light Company	environmental violation	2016	EPA	$50,500
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2005	EPA	$27,150
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2005	EPA	$27,150
ALLEGHENY ENERGY SUPPLY CO/MITCHELL POWER STA	environmental violation	2002	EPA	$25,000
ALLEGHENY ENERGY SUPPLY CO/ARMSTRONG POWER STA	environmental violation	2012	EPA	$22,001
JERSEY CENTRAL POWER & LIGHT COMPANY	workplace safety or health violation	2012	OSHA	$21,000
FirstEnergy Service Company	labor relations violation	2007	NLRB	$15,000
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2008	EPA	$15,000
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2009	EPA	$15,000

ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2013	EPA	$14,680
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2013	EPA	$14,680
FIRST ENERGY/OHIO EDISON COMPANY	workplace safety or health violation	2011	OSHA	$14,000
FirstEnergy Generation Corp.	labor relations violation	2008	NLRB	$12,160
FirstEnergy Corp.	wage and hour violation	2012	WHD	$11,999
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2002	EPA	$10,000
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2002	EPA	$10,000
ALLEGHENY ENERGY SUPPLY CO/MITCHELL POWER STA	environmental violation	2006	EPA	$10,000
FIRST ENERGY GENERATION CORPORATION	workplace safety or health violation	2004	OSHA	$9,000
ILLUMINATING CO : A FIRST ENERGY COMPANY	workplace safety or health violation	2003	OSHA	$8,500
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2006	EPA	$8,100
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2006	EPA	$8,100
FIRSTENERGY CORP. DBA FIRSTENERGY GENERATION CORP.	workplace safety or health violation	2005	OSHA	$7,000
OHIO EDISON COMPANY	workplace safety or health violation	2014	OSHA	$7,000
OHIO EDISON COMPANY	workplace safety or health violation	2015	OSHA	$7,000
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2003	EPA	$6,750
ALLEGHENY ENERGY SUPPLY CO/HATFIELDS FERRY POWER STA	environmental violation	2003	EPA	$6,750
ALLEGHENY ENERGY SUPPLY COMPANY, LLC	workplace safety or health violation	2011	OSHA	$5,950
ALLEGHENY ENERGY SUPPLY COMPANY, LLC	workplace safety or health violation	2012	OSHA	$5,500
JERSEY CENTRAL POWER & LIGHT COMPANY	workplace safety or health violation	2009	OSHA	$5,000

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Note: our penalty amounts include not only fines and monetary settlements but also costs such as supplementary environmental projects or consumer relief that companies are often compelled to undertake as part of settlements. If the settlement includes fines paid to state governments, those are included as well.

Appendix I

Peer-Reviewed Research which supports Complainant's assertions of adverse biological effects and/or harm to the central nervous system:

1. Microwave Effects on Plasmid DNA, J L Sagripanti, M L Swicord, **C C Davis**, Radiat Res. 1987 May;110(2):219-31. https://pubmed.ncbi.nlm.nih.gov/3575652/

2. Effects of continuous and pulsed 2450-MHz radiation on spontaneous lymphoblastoid transformation of human lymphocytes in vitro, Czerska EM, Elson EC, **Davis CC**, Swicord ML, Czerski , *Bioelectromagnetics*. 1992;13(4):247-259. doi:10.1002/bem.2250130402. https://apps.dtic.mil/dtic/tr/fulltext/u2/a216500.pdf. This study is also cited in the research of the BioInitiative Report under "1. RFR Research Summaries" - https://bioinitiative.org/research-summaries/

3. Microwaves from Mobile Phones Inhibit 53BP1 Focus Formation in Human Stem Cells More Strongly Than in Differentiated Cells: Possible Mechanistic Link to Cancer Risk. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854769/, Markova, Malmgren, et al. Environmental Health Perspectives 118(3):394-399 (2010).

4. Radiofrequency Radiation and Gene/Protein Expression: A Review. https://pubmed.ncbi.nlm.nih.gov/19708776/, McNamee and Chauhan. Radiation Research 172(3):265-287 (2009).

5. Evaluation of HSP70 Expression and DNA Damage in Cells of a Human Trophoblast Cell Line Exposed to 1.8GHz Amplitude-Modulated Radiofrequency Fields. https://pubmed.ncbi.nlm.nih.gov/18302482/, Valbonesi, Franzellotto, et al. Radiation Research 169(3):270-279 (2008).

6. Gene and Protein Expression Following Exposure to Radiofrequency Fields from Mobile Phones. https://pubmed.ncbi.nlm.nih.gov/18795152/, Vanderstraeten and Verschaeve. Environmental Health Perspectives 116(9):1131-5 (2008).

7. Nonthermal Effects of RadioFrequency-Field Exposure on Calcium Dynamics in Stem Cell-derived Neuronal Cells: Elucidation of Calcium Pathways. https://pubmed.ncbi.nlm.nih.gov/18302487/, Rao, Titushkin, et al. Radiation Research 169(3):319-329 (2008).

8. Gene Expression Changes in the Skin of Rats Induced by Prolonged 35 GHz Millimeter-Wave Exposure. https://pubmed.ncbi.nlm.nih.gov/18302488/, Millenbaugh, Roth, et al. Radiation Research 169(3):288-300 (2008).

9. DNA Damage in Molt-4 T-lymphoblastoid Cells Exposed to Cellular Telephone Radiofrequency Fields in Vitro. https://www.sciencedirect.com/science/article/abs/pii/S0302459898000749, Philips, Ivaschuk, et al. Bioelectrochemistry and Bioenergetics 45(1):103-110 (1998).

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10. Early-Life Exposure to Pulsed LTE Radiofrequency Fields Causes Persistent Changes in Activity and Behavior in C57BL/6 J Mice. https://onlinelibrary.wiley.com/doi/full/10.1002/bem.22217, Broom, K., et al. Bio Electro Magnetics 40(7):498-511 (2019).

11. Are Rises in Electro-Magnetic Field in The Human Environment, Interacting with Multiple Environmental Pollutions, The Tripping Point for Increases in Neurological Deaths in the Western World?, https://www.sciencedirect.com/science/article/pii/S0306987719300040?via%3Dihub, Pritchard, C., Silk, A. and Hansen, L. Medical Hypotheses 127: 76-83 (2019).

12. Effect of 1800-2100 MHz Electromagnetic Radiation on Learning-Memory and Hippocampal Morphology in Swiss Albino Mice. https://www.researchgate.net/publication/330729256_Effect_of_1800-2100_MHz_Electromagnetic_Radiation_on_Learning-Memory_and_Hippocampal_Morphology_in_Swiss_Albino_Mice, Kishore, G., Venkatashu, K., and Sridevi, N. Jorunal of Clincal and Diagnostic Research 12(2): 14-17 (2019).

13. Monitoring of BALB/C Strain Mice Health, Investigation of Behavior, Hematological Parameters Under the Effect of an Electromagnetic Field. https://www.researchgate.net/publication/330652562_Monitoring_of_BALBC_strain_mice_health_investigation_of_behavior_hematological_parameters_under_the_effect_of_an_electromagnetic_field, Zymantiene, J., et al. Medycyna Weterynarjna 75(03): 158-163 (2019).

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15. Mobile Phone Distance From Head and Temperature Changes of Radio Frequency Waves on Brain Tissue. https://pubmed.ncbi.nlm.nih.gov/30123435/, Forouharmajd, F., Ebrahimi, H. and Pourabdian, S. International Journal of Preventative Medicine (2018).

16. A Prospective Cohort Study of Adolescents' Memory Performance and Individual Brain Dose of Microwave Radiation from Wireless Communication. https://ehp.niehs.nih.gov/doi/10.1289/ehp2427#tab3, Foerster, M., et al. Environmental Health Perspectives 126(7) (2018).

17. Electromagnetic Radiation 2450 MHz Exposure Causes Cognition Deficit with Mitochondrial Dysfunction and Activation of Intrinsic Pathway of Apoptosis in Rats. https://www.ias.ac.in/article/fulltext/jbsc/043/02/0263-0276, Gupta, S.K., Mesharam, M.K., and Krishnamurthy, S. Journal of Biosciences 43(2) 263-276 (2018).

18. The Effect of Wi-Fi Electromagnetic Waves in Unimodal and Multimodal Object Recognition Tasks in Male Rats. https://pubmed.ncbi.nlm.nih.gov/28332042/, Hassanshahi, A., et al. Neurological Sciences 38(6):1069-1076 (2017).

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19. Effects of Short and Long Term Electromagnetic Fields Exposure on the Human Hippocampus. https://www.sciencedirect.com/science/article/pii/S2213879X17300524, Deniz, O.G., et al. Journal of Microscopy and Ultrastructure 5(4):191-197 (2017).

20. Effects of Long Term Exposure of 900-1800 MHz Radiation Emitted from 2G Mobile Phone on Mice Hippocampus – A Histomorphometric Study. https://pubmed.ncbi.nlm.nih.gov/27656427/, Mugunthan, Shanmugasamy, et al. Journal of Clinical and Diagnostic Research 10(8):AF01-6 (2016).

21. Effect of Mobile Phone Radiation on Pentylenetetrazole-Induced Seizure Threshold in Mice. https://pubmed.ncbi.nlm.nih.gov/27635206/, Kouchaki, Motaghedifard, et al. Iranian Journal of Basic Medical Sciences 19(7):800-3 (2016).

22. Effects of 3 Hz and 60Hz Extremely Low Frequency Electromagnetic Fields on Anxiety-Like Behaviors, Memory Retention of Passive Avoidance and ElectroPhysiological Properties of Male Rats. https://pubmed.ncbi.nlm.nih.gov/27330708/, Rostami, Shahani, et al. J Lasers Medical Science 7(2):120-125 (2016).

23. Short-Term Memory in Mice is Affected by Mobile Phone Radiation. https://pubmed.ncbi.nlm.nih.gov/21112192/, Ntzouni, Stamatakis, et al. PathoPhysiology 18(3):193-199 (2011).

24. Use of Mobile Phones and Changes in Cognitive Function in Adolescents. https://pubmed.ncbi.nlm.nih.gov/20798018/, Thomas, Benke, et al. Occupational Environmental Medicine 67(12):861-866 (2010).

25. Increased Blood-Brain Barrier Permeability in Mammalian Brain 7 Days After Exposure to the Radiation from a GSM-900 Mobile Phone. https://pubmed.ncbi.nlm.nih.gov/19345073/, Nittby, Brun, et al. PathoPhysiology 16(2-3):103-112 (2009).

26. Effects of GSM 1800 MHz on Dendritic Development of Cultured Hippocampal Neurons. https://pubmed.ncbi.nlm.nih.gov/18031599/, Ning, Xu, et al. Acta Pharmacol Sin28(12):1873-1880 (2007).

27. Neurological Effects of Radiofrequency Electromagnetic Radiation. https://link.springer.com/chapter/10.1007%2F978-1-4615-2542-4_2#page-1, Lai, Henry. Advances in Electromagnetic Fields in Living Systems1:27-80 (1994).

Appendix J

Date Written: February 24, 2020

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V Wes Zimmerman v. Metropolitan Edison Company Docket No. C-2019-3007568 – this document has not been filed to Mr. Zimmerman's case to date.

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 2009[3] 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:

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[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."

Accounting Clarity

Internal Revenue Code[4] (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]

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.

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 2021[12], 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.

Met-Ed's Use of the Word Depreciation

In Met-Ed's Smart Meter Deployment Plan[13], 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.

[15]The 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-20 I 3-2356606 (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, 2010[18] (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.

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 homes 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.

Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters

Sage Associates
Santa Barbara, CA
USA

Source: http://sagereports.com/smart-meter-rf/docs/Smart-Meter_Report.B-Tables.pdf

January 1, 2011

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SUMMARY OF FINDINGS

This Report has been prepared to document radiofrequency radiation (RF) levels associated with wireless smart meters in various scenarios depicting common ways in which they are installed and operated.

The Report includes computer modeling of the range of possible smart meter RF levels that are occurring in the typical installation and operation of a single smart meter, and also multiple meters in California. It includes analysis of both two-antenna smart meters (the typical installation) and of three-antenna meters (the collector meters that relay RF signals from another 500 to 5000 homes in the area).

RF levels from the various scenarios depicting normal installation and operation, and possible FCC violations have been determined based on both time-averaged and peak power limits (Tables 1 - 14).

Potential violations of current FCC public safety standards for smart meters and/or collector meters in the manner installed and operated in California are predicted in this Report, based on computer modeling (Tables 10 – 17).

Tables 1 – 17 show power density data and possible conditions of violation of the FCC public safety limits, and Tables 18 – 33 show comparisons to health studies reporting adverse health impacts.

FCC compliance violations are likely to occur under normal conditions of installation and operation of smart meters and collector meters in California. Violations of FCC safety limits for uncontrolled public access are identified at distances within 6” of the meter. Exposure to the face is possible at this

distance, in violation of the time-weighted average safety limits (Tables 10-11). FCC violations are predicted to occur at 60% reflection (OET Equation 10 and 100% reflection (OET Equation 6) factors*, both used in FCC OET 65 formulas for such calculations for time-weighted average limits. Peak power limits are not violated at the 6" distance (looking at the meter) but can be at 3" from the meter, if it is touched.

This report has also assessed the potential for FCC violations based on two examples of RF exposures in a typical residence. RF levels have been calculated at distances of 11" (to represent a nursery or bedroom with a crib or bed against a wall opposite one or more meters); and at 28" (to represent a kitchen work space with one or more meters installed on the kitchen wall).

FCC compliance violations are identified at 11" in a nursery or bedroom setting using Equation 10* of the FCC OET 65 regulations (Tables 12-13). These violations are predicted to occur where there are multiple smart meters, or one collector meter, or one collector meter mounted together with several smart meters.

FCC compliance violations are not predicted at 28" in the kitchen work space for 60% or for 100% reflection calculations. Violations of FCC public safety limits are predicted for higher reflection factors of 1000% and 2000%, which are not a part of FCC OET 65 formulas, but are included here to allow for situations where site-specific conditions (highly reflective environments, for example, galley-type kitchens with many highly reflective stainless steel or other metallic surfaces) may be warranted.*

*FCC OET 65 Equation 10 assumes 60% reflection and Equation 6 assumes 100% reflection. RF levels are also calculated in this report to account for some situations where interior environments have highly reflective surfaces as might be found in a small kitchen with stainless steel or other metal counters, appliances and furnishings. This report includes the FCC's reflection factors of 60% and 100%, and also reflection factors of1000% and 2000% that are more in line with those reported in Hondou, 2001; Hondou, 2006 and Vermeeren et al, 2010. The use of a 1000% reflection factor is still conservative in comparison to Hondou, 2006. A 1000% reflection factor is 12% (or 121 times as high) a factor for power density compared to Hondou et al, 2006 prediction of 1000 times higher power densities due to reflection. A 2000% reflection factor is only 22% (or 441 times) that of Hondou's finding that power density can be as high as 2000 times higher.

In addition to exceeding FCC public safety limits under some conditions of installation and operation, smart meters can produce excessively elevated RF exposures, depending on where they are installed. With respect to absolute RF exposure levels predicted for occupied space within dwellings, or outside areas like patios, gardens and walk-ways, RF levels are predicted to be substantially elevated within a few feet to within a few tens of feet from the meter(s).

For example, one smart meter at 11" from occupied space produces somewhere between 1.4 and 140 microwatts per centimeter squared (uW/cm2) depending on the duty cycle modeled (Table 12). Since FCC OET 65 specifies that continuous exposure be assumed where the public cannot be excluded (such as is applicable to one's home), this calculation produces an RF level of 140 uW/cm2 at 11" using the FCCs lowest reflection factor of 60%. Using the FCC's reflection factor of 100%, the figures rise to 2.2 uW/cm2 – 218 uW/cm2, where the continuous exposure calculation is 218 uW/cm2 (Table 12). These are very significantly elevated RF exposures in comparison to typical individual exposures in daily life. Multiple smart meters in the nursery/bedroom example at 11" are predicted to generate RF levels from about 5 to 481 uW/cm2 at the lowest (60%) reflection factor; and 7.5 to 751 uW/cm2 using the FCCs 100% reflection factor (Table 13). Such levels are far above typical public exposures.

RF levels at 28" in the kitchen work space are also predicted to be significantly elevated with one or more smart meters (or a collector meter alone or in combination with multiple smart meters). At 28" distance, RF levels are predicted in the kitchen example to be as high as 21 uW/cm2 from a single meter and as high as 54.5 uW/cm2 with multiple smart meters using

the lower of the FCCs reflection factor of 60% (Table 14). Using the FCCs higher reflection factor of 100%, the RF levels are predicted to be as high as 33.8 uW/cm2 for a single meter and as high as 85.8 uW/cm2 for multiple smart meters (Table 14). For a single collector meter, the range is 60.9 to 95.2 uW/cm2 (at 60% and 100% reflection factors, respectively) (from Table 15).

Table 16 illustrates predicted violations of peak power limit (4000 uW/cm2) at 3" from the surface of a meter. FCC violations of peak power limit are predicted to occur for a single collector meter at both 60% and 100% reflection factors. This situation might occur if someone touches a smart meter or stands directly in front.

Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

Neither the FCC, the CPUC, the utility nor the consumer know what portion of the allowable public safety limit is already being used up or pre-empted by RF from other sources already present in the particular location a smart meter may be installed and operated.

Consumers, for whatever personal reason, choice or necessity who have already eliminated all possible wireless exposures from their property and lives, may now face excessively high RF exposures in their homes from

smart meters on a 24-hour basis. This may force limitations on use of their otherwise occupied space, depending on how the meter is located, building materials in the structure, and how it is furnished.

People who are afforded special protection under the federal Americans with Disabilities Act are not sufficiently acknowledged nor protected. People who have medical and/or metal implants or other conditions rendering them vulnerable to health risks at lower levels than FCC RF limits may be particularly at risk (Tables 30-31). This is also likely to hold true for other subgroups, like children and people who are ill or taking medications, or are elderly, for they have different reactions to pulsed RF. Childrens' tissues absorb RF differently and can absorb more RF than adults (Christ et al, 2010; Wiart et al, 2008). The elderly and those on some medications respond more acutely to some RF exposures.

Safety standards for peak exposure limits to radiofrequency have not been developed to take into account the particular sensitivity of the eyes, testes and other ball shaped organs. There are no peak power limits defined for the eyes and testes, and it is not unreasonable to imagine situations where either of these organs comes into close contact with smart meters and/or collector meters, particularly where they are installed in multiples (on walls of multi-family dwellings that are accessible as common areas).

In summary, no positive assertion of safety can be made by the FCC, nor relied upon by the CPUC, with respect to pulsed RF when exposures are chronic and occur in the general population. Indiscriminate exposure to environmentally ubiquitous pulsed RF from the rollout of millions of new RF sources (smart meters) will mean far greater general population exposures, and potential health consequences. Uncertainties about the

existing RF environment (how much RF exposure already exists), what kind of interior reflective environments exist (reflection factor), how interior space is utilized near walls), and other characteristics of residents (age, medical condition, medical implants, relative health, reliance on critical care equipment that may be subject to electronic interference, etc) and unrestrained access to areas of property where meter is located all argue for caution.

INTRODUCTION

How Smart Meters Work

This report is limited to a very simple overview of how smart meters work, and the other parts of the communication system that are required for them to transmit information on energy usage within a home or other building. The reader can find more detailed information on smart meter and smart grid technology from numerous sources available on the Internet.

Often called 'advanced metering infrastructure or AMI', smart meters are a part of an overall system that includes a) a mesh network or series of wireless antennas at the neighborhood level to collect and transmit wireless information from all the smart meters in that area back to a utility.

The mesh network (sometimes called a distributed antenna system) requires wireless antennas to be located throughout neighborhoods in close proximity to where smart meters will be placed. Often, a municipality will receive a hundred or more individual applications for new cellular antenna service, which is specifically to serve smart meter technology needs. The communication network needed to serve smart meters is typically separate from existing cellular and data transmission antennas (cell tower antennas). The mesh network (or DAS) antennas are often utility-pole mounted. This part of the system can spread hundreds of new wireless antennas throughout neighborhoods.

Smart meters are a new type electrical meter that will measure your energy usage, like the old ones do now. But, it will send the information back to the utility by wireless signal (radiofrequency/microwave radiation signal) instead of having a utility meter reader come to the property and manually

do the monthly electric service reading. So, smart meters are replacements for the older 'spinning dial' or analog electric meters. Smart meters are not optional, and utilities are installing them even where occupants do not want them.

In order for smart meters to monitor and control energy usage via this wireless communication system, the consumer must be willing to install power transmitters inside the home. This is the third part of the system and involves placing power transmitters (radiofrequency/microwave radiation emitting devices) within the home on each appliance. A power transmitter is required to measure the energy use of individual appliances (e.g., washing machines, clothes dryers, dishwashers, etc) and it will send information via wireless radiofrequency signal back to the smart meter. Each power transmitter handles a separate appliance. A typical kitchen and laundry may have a dozen power transmitters in total. If power transmitters are not installed by the homeowner, or otherwise mandated on consumers via federal legislation requiring all new appliances to have power transmitters built into them, then there may be little or no energy reporting nor energy savings.

Smart meters could also be installed that would operate by wired, rather than wireless means. Shielded cable, such as is available for cable modem (wired internet connection) could connect smart meters to utilities. However, it is not easy to see the solution to transmit signals from power transmitters (energy use for each appliance) back to the utility.

Collector meters are a special type of smart meter that can serve to collect the radiofrequency/microwave radiation signals from many surrounding

buildings and send them back to the utility. Collector meters are intended to collect and re-transmit radiofrequency information for somewhere between 500-5000 homes or buildings. They have three operating antennas compared to two antennas in regular smart meters. Their radiofrequency microwave emissions are higher and they send wireless signal much more frequently. Collector meters can be place on a home or other building like smart meters, and there is presently no way to know which a homeowner or property owner might receive.

Mandate

The California Public Utilities Commission has authorized California's investor-owned utilities (including Pacific Gas & Electric, Southern California Edison Company and San Diego Gas & Electric) to install more than 10 million new wireless* smart meters in California, replacing existing electric meters as part of the federal SmartGrid program.

The goal is to provide a new residential energy management tool. It is intended to reduce energy consumption by providing computerized information to customers about what their energy usage is and how they might reduce it by running appliances during 'off-time' or 'lower load' conditions. Presumably this will save utilities from having to build new facilities for peak load demand. Utilities will install a new smart meter on every building to which electrical service is provided now. In Southern California, that is about 5 million smart meters in three years for a cost of around $1.6 billion dollars. In northern California, Pacific Gas & Electric is slated to install millions of meters at a cost of more than $2.2 billion dollars. If consumers decide to join the program (so that appliances can report

energy usage to the utility), they can be informed about using energy during off-use or low-use periods, but only if consumers also agree to install additional wireless power transmitters on appliances inside the home. Each power transmitter is an additional source of pulsed RF that produces high exposures at close range in occupied space within the home.

> *"Proponents of smart meters say that when these meters are teamed up with an in-home display that shows current energy usage, as well as a communicating thermostat and software that harvest and analyze that information, consumers can see how much consumption drives cost -- and will consume less as a result. Utilities are spending billions of dollars outfitting homes and businesses with the devices, which wirelessly send information about electricity use to utility billing departments and could help consumers control energy use."*
>
> Wall Street Journal, April 29, 2009.

The smart meter program is also a tool for load-shedding during heavy electrical use periods by turning utility meters off remotely, and for reducing the need for utility employees to read meter data in the field.

Purpose of this Report

This Report has been prepared to document radiofrequency radiation (RF) levels associated with wireless smart meters in various scenarios depicting common ways in which they are installed and operated.

The Report includes computer modeling of the range of possible smart meter RF levels that are occurring in the typical installation and operation of a single smart meter, and also multiple meters in California. It includes analysis of both two-antenna smart meters (the typical installation) and of

three-antenna meters (the collector meters that relay RF signals from another 500 to 5000 homes in the area).

RF levels from the various scenarios depicting normal installation and operation, and possible FCC violations have been determined based on both time-averaged and peak power limits (Tables 1 - 14).

Potential violations of current FCC public safety standards for smart meters and/or collector meters in the manner installed and operated in California are illustrated in this Report, based on computer modeling (Tables 10 – 17).

Tables which present data, possible conditions of violation of the FCC public safety limits, and comparisons to health studies reporting adverse health impacts are summarized (Tables 18 – 33).

The next section describes methodology in detail, but generally this Report provides computer modeling results for RF power density levels for these scenarios, analysis of whether and under what conditions FCC public safety limit violations may occur, and comparison of RF levels produced under these scenarios to studies reporting adverse health impacts with chronic exposure to low-intensity radiofrequency radiation at or below levels produced by smart meters and collector meters in the manner installed and operated in California.

1) Single 'typical' meter - tables showing RF power density at increasing distances in 0.25' (3") intervals outward for single meter (two-antenna meter). Effects of variable duty cycles (from 1% to 90%) and various reflection factors (60%, 100%, 1000% and 2000%) have been calculated.
2) Multiple 'typical' meters - tables showing RF power density at increasing distances as above.

3) Collector meter - tables showing RF power density related to a specialized collector meter which has three internal antennas (one for every 500 or 5000 homes) as above.
4) Collector meter - a single collector meter installed with multiple 'typical' two-antenna meters as above.
5) Tables are given to illustrate the distance to possible FCC violations for time-weighted average and peak power limits (in inches).
6) Tables are given to document RF power density levels at various key distances (11" to a crib in a bedroom; 28" to a kitchen work area; and 6" for a person attempting to read the digital readout of a smart meter, or inadvertently working around a meter.
7) Tables are given to compare RF power density levels with studies reporting adverse health symptoms and effects (and those levels of RF associated with such health effects).
8) Tables are given to compare smart meter and collector meter RF to BioInitiative Report recommended limit (in feet).

Framing Questions

In view of the rapid deployment of smart meters around the country, and the relative lack of public information on their radiofrequency (RF) emission profiles and public exposures, there is a crucial need to provide independent technical information.

There is very little solid information on which decision-makers and the public can make informed decisions about whether they are an acceptable new RF exposure, in combination with pre-existing RF exposures.

On-going Assessment of Radiofrequency Radiation Health Risks

The US NIEHS National Toxicology Program nominated radiofrequency radiation for study as a carcinogen in 1999. Existing safety limits for pulsed RF were termed "not protective of public health" by the

Radiofrequency Interagency Working Group (a federal interagency working group including the FDA, FCC, OSHA, the EPA and others). Recently, the NTP issued a statement indicating it will complete its review by 2014 (National Toxicology Program, 2009). The NTP radiofrequency radiation study results have been delayed for more than a decade since 1999 and very little laboratory or epidemiological work has been completed. Thus, he explosion of wireless technologies is producing radiofrequency radiation exposures over massive populations before questions are answered by federal studies about the carcinogenicity or toxicity of low-intensity RF such as are produced by smart meters and other SmartGrid applications of wireless. The World Health Organization and the International Agency for Research on Cancer have not completed their studies of RF (the IARC WHO RF Health Monograph is not expected until at least 2011). In the United States, the National Toxicology Program listed RF as a potential carcinogen for study, and has not released any study results or findings a decade later. There are no current, relevant public safety standards for pulsed RF involving chronic exposure of the public, nor of sensitive populations, nor of people with metal and medical implants that can be affected both by localized heating and by electromagnetic interference (EMI) for medical wireless implanted devices.

Considering that millions of smart meters are slated to be installed on virtually every electrified building in America, the scope of the question is large and highly personal. Every family home in the country, and every school classroom – every building with an electric meter – is to have a new wireless meter – and thus subject to unpredictable levels of RF every day.

1) Have smart meters been tested and shown to comply with FCC

public safety limits (limits for uncontrolled public access)?

2) Are these FCC public safety limits sufficiently protective of public health and safety? This question is posed in light of the last thirty years of international scientific investigation and public health assessments documenting the existence of bioeffects and adverse health effects at RF levels far below current FCC standards. The FCC's standards have not been updated since 1992, and did not anticipate nor protect against chronic exposures (as opposed to acute exposures) from low-intensity or non-thermal RF exposures, particularly pulsed RF exposures.

3) What demonstration is there that wireless smart meters will comply with existing FCC limits, as opposed to under strictly controlled conditions within government testing laboratories?

4) Has the FCC been able to certify that compliance is achievable under real-life use conditions including, but not limited to:

- In the case where there are both gas and electric meters on the home located closely together.

- In the case where there is a "bank" of electric and gas meters, on a multi-family residential building such as on a condominium or apartment building wall. There are instances of up to 20 or more meters located in close proximity to occupied living space in the home,in the classroom or other occupied public space.

• In the case where there is a collector meter on a home that serves the home plus another 500 to 5000 other residential units in the area, vastly increasing the frequency of RF bursts.

• In the case where there is one smart meter on the home but it acts as a relay for other local neighborhood meters. What about 'piggybacking' of other neighbors' meters through yours? How can piggybacking be reasonably estimated and added onto the above estimates?

• What about the RF emissions from the power transmitters? Power transmitters installed on appliances (perhaps 10-15 of them per home) and each one is a radiofrequency radiation transmitter.

• How can the FCC certify a system that has an unknown number of such transmitters per home, with no information on where they are placed?

• Where people with medical/metal implants are present? (Americans with Disabilities Act protects rights)

5) What assessment has been done to determine what pre-existing conditions of RF exposure are already present. On what basis can compliance for the family inside the residence be assured, when there is no verification of what other RF sources exist on private property? How is the problem of cumulative RF exposure properly assessed (wireless routers, wireless laptops, cell phones, PDAs, DECT or other active-base cordless phone systems, home security systems,

baby monitors, contribution of AM, FM, television, nearby cell towers, etc).

6) What is the cumulative RF emissions worst-case profile? Is this estimate in compliance?

7) What study has been done for people with metal implants* who require protection under Americans with Disabilities Act? What is known about how metal implants can intensity RF, heat tissue and result in adverse effects below RF levels allowed for the general public. What is known about electromagnetic interference (EMI) from spurious RF sources in the environment (RFID scanners, cell towers, security gates, wireless security systems, wireless communication devices and routers, wireless smart meters, etc)

*Note: There are more than 20 million people in the US who need special protection against such exposures that may endanger them. High peak power bursts of RF may disable electronics in some critical care and medical implants. We already have reports of wireless devices disabling deep brain stimulators in Parkinson's patients and there is published literature on malfunctions with critical care equipment.

PUBLIC SAFETY LIMITS FOR RADIOFREQUENCY RADIATION

The FCC adopted limits for Maximum Permissible Exposure (MPE) are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," (NCRP, 1986).

In the United States, the Federal Communications Commission (FCC) enforces limits for both occupational exposures (in the workplace) and for public exposures. The allowable limits are variable, according to the frequency transmitted. Only public safety limits for uncontrolled public access are assessed in this report.

Maximum permissible exposures (MPE) to radiofrequency electromagnetic fields are usually expressed in terms of the plane wave equivalent power density expressed in units of milliwatts per square centimeter (mW/cm2) or alternatively, absorption of RF energy is a function of frequency (as well as body size and other factors). The limits vary with frequency. Standards are more restrictive for frequencies at and below 300 MHz. Higher intensity RF exposures are allowed for frequencies between 300 MHz and 6000 MHz than for those below 300 MHz.

In the frequency range from 100 MHz to 1500 MHz, exposure limits for field strength and power density are also generally based on the MPE limits found in Section 4.1 of "*IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz*," ANSI/IEEE C95.1-1992 (IEEE, 1992, and approved for use as an American National Standard by the American National Standards Institute

(ANSI).

US Federal Communications Commission (FCC) Exposure Standards

Table 1, Appendix A FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time $[E]^2$ $[H]^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	$(900/f_2)$*	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6

B) FCC Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time $[E]^2$ $[H]^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	30
3.0-30	824/f	2.19/f	$(180/f_2)$*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

NOTE 1: ***Occupational/controlled*** limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: ***General population/uncontrolled*** exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure. Source: FCC Bulletin OET 65 Guidelines, page 67 OET, 1997.

In this report, the public safety limit for a smart meter is a combination of the individual antenna frequency limits and how much power output they create. A smart meter contains two antennas. One transmits at 915 MHz and the other at 2405 MHz. They can transmit at the same time, and so their effective radiated power is summed in the calculations of RF power density. Their combined limit is 655 uW/cm2. This limit is calculated by formulas from Table 1, Part B and is proportionate to the power output and specific safety limit (in MHz) of each antenna.

For the collector meter, with it's three internal antennas, the combined public safety limit for time-averaged exposure is 571 MHz (a more restrictive level since it includes an additional 824 MHz antenna that has a lower limit than either the 915 MHz or the 2405 MHz antennas). In a collector meter, only two of the three antennas can transmit simultaneously (the 915 MHz LAN and the GSM 850 MHz (from the FCC Certification Exhibit titled RF Exposure Report for FCC ID: SK9AMI-2A). The proportionate power output of each antenna plus the safety limit for each antenna frequency combines to give a safety limit for the collector meter of 571 uW/cm2. Where one collector meter is combined with multiple smart meters, the combined limit is weighted upward by the additional smart meters' contribution, and is 624 uW/cm2.

Continuous Exposure

FCC Bulletin OET 65 guidelines require the assumption of continuous exposure in calculations. Duty cycles offered by the utilities are a fraction of continuous use, and significantly diminish predictions of RF exposure.

At present, there is no evidence to prove that smart meters are functionally unable to operate at higher duty cycles that some utilities have estimated (estimates vary from 1% to 12.5% duty cycle, and as high as 30%). Confirming this is the Electric Power Research Institute (EPRI) in its "Perspective on Radio-Frequency Exposure Associated with Residential Automatic Meter Reading Technology (EPRI, 2010) According to EPRI:

> *"The technology not only provides a highly efficient method for obtaining usage data from customers, but it also can provide up-to-the-minute information on consumption patterns since the meter reading devices can be programmed to provide data as often as needed."* Emphasis added

The FCC Bulletin OET 65 guidelines specify that continuous exposure (defined by the FCC OET 65 as 100% duty cycle) is required in calculations where it is not possible to control exposures to the general public.

> *"It is important to note that for general population/uncontrolled exposures it is often not possible to control exposures to the extent that averaging times can be applied. In those situations, it is often necessary to assume continuous exposure."* (emphasis added)
>
> FCC Bulletin OET 65, p, 10

> ***"Duty factor**. The ratio of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmissions. A duty factor of 1.0 corresponds to continuous operation."*
>
> (emphasis added)
>
> FCC Bulletin OET 65, p, 2

This provision then specifies duty cycles to be increased to 100%.

The FCC Guidelines (OET 65) further address cautions that should be observed for uncontrolled public access to areas that may cause exposure to high levels of RF.

Re-radiation

The foregoing also applies to high RF levels created in whole or in part by re-eradiation. A convenient rule to apply to all situations involving RF radiation is the following:

(1) Do not create high RF levels where people are or could reasonably be expected to be present, and (2) [p]revent people from entering areas in which high RF levels are necessarily present.

(2) Fencing and warning signs may be sufficient in many cases to protect the general public. Unusual circumstances, the presence of multiple sources of radiation, and operational needs will require more elaborate measures.

(3) Intermittent reductions in power, increased antenna heights, modified antenna radiation patterns, site changes, or some combination of these may be necessary, depending on the particular situation.

FCC OET 65, Appendix B, p. 79

Fencing, distancing, protective RF shielded clothing and signage warning occupants not to use portions of their homes or properties are not feasible nor desirable in public places the general public will spend time (schools, libraries, cafes, medical offices and clinics, etc) These mitigation strategies may be workable for RF workers, but are unsuited and intolerable for the public.

Reflections

A major, uncontrolled variable in predicting RF exposures is the degree to

which a particular location (kitchen, bedroom, etc) will reflect RF energy created by installation of one or more smart meters, or a collector meter and multiple smart meters. The reflectivity of a surface is a measure of the amount of reflected radiation. It can be defined as the ratio of the intensities of the reflected and incident radiation. The reflectivity depends on the angle of incidence, the polarization of the radiation, and the electromagnetic properties of the materials forming the boundary surface. These properties usually change with the wavelength of the radiation. The reflectivity of polished metal surfaces is usually quite high (such as stainless steel and polished metal surfaces typical in kitchens, for example).

Reflections can significantly increase localized RF levels. High uncertainty exists about how extensive a problem this may create in routine installations of smart meters, where the utility and installers have no idea what kind of reflectivity is present within the interior of buildings.

Reflections in Equation 6 and 10 of the FCC OET Bulletin 65 include rather minimal reflection factors of 100% and 60%, respectively. This report includes higher reflection factors in line with published studies by Hondou et al, 2006, Hondou, 2002 and Vermeeren et al, 2010. Reflection factors are modeled at 1000% and 2000% as well as at 60% and 100%, based on published scientific evidence for highly reflective environments. Hondou (2002) establishes that power density can be higher than conventional formulas predict using standard 60% and 100% reflection factors.

> *"We show that this level can reach the reference level (ICNIRP Guideline) in daily life. This is caused by the fundamental properties of electromagnetic field, namely, reflection and additivity. The level of exposure is found to be much higher than estimated by conventional framework of analysis that assumes that the level*

rapidly decreases with the inverse square distance between the source and the affected person."

"Since the increase of electromagnetic field by reflective boundaries and the additivity of sources has not been recognized yet, further detailed studies on various situations and the development of appropriate regulations are required."

Hondou et al (2006) establishes that power densities 1000 times to 2000 times higher than the power density predictions from computer modeling (that does not account properly for reflections) can be found in daily living situations. Power density may not fall off with distance as predicted by formulas using limited reflection factors. The RF hot spots created by reflection can significantly increase RF exposures to the public, even above current public safety limits.

"We confirm the significance of microwave reflection reported in our previous Letter by experimental and numerical studies. Furthermore, we show that 'hot spots' often emerge in reflective areas, where the local exposure level is much higher than average."

"*Our results indicate the risk of 'passive exposure' to microwaves*."

"The experimental values of intensity are consistently higher than predicted values. Intensity does not even decrease with distance from the source."

"We further confirm the existence of microwave 'hotspots', in which he microwaves are 'localized'. The intensity measured at one hot spot 4.6 m from the transmitter is the same as that at 0.1 m from the transmitter in the case with out reflection (free boundary condition). Namely, the intensity at the hot spot is increased by ***approximately 2000 times*** *by reflection*." Emphasis added

"To confirm our experimental findings of the greater-than-predicted intensity due to reflection, as well as the hot spots, we performed two numerical simulations...". " intensity does not monotonically decrease from the transmitter, which is in clear contrast to the case without reflection."

> *"The intensity at the hot spot (X, Y, Z) = 1.46, -0.78, 105) around 1.8 m from the transmitter in the reflective boundary condition is* ***approximately 1000 times higher*** *than that at the same position in the free boundary condition. The result of the simulation is thus consistent with our experiments, although the values differ owing to the different conditions imposed by computational limits*."
>
> Emphasis added

> *"(t)he result of the experiment is also reproduced: a greater than predicted intensity due to reflection, as well as the existence of hot spots*."

> *"In comparison with the control simulation using the free boundary condition, we find that the power density at the hot spot is increased* ***by approximately a thousand times*** *by reflection*."
>
> Emphasis added

Further, the author comments that:

> *"we may be passively exposed beyond the levels reported for electro-medical interference and health risks*."

> *"Because the peak exposure level is crucial in considering electro-medical interference, interference (in) airplanes, and biological effects on human beings, we also need to consider the possible peak exposure level, or 'hot spots', for the worst-case estimation*."

Reflections and re-radiation from common building material (tile, concrete, stainless steel, glass, ceramics) and highly reflective appliances and furnishings are common in kitchens, for example. Using only low reflectivity FCC equations 6 and 10 may not be informative. Published studies underscore how use of even the highest reflection coefficient in FCC OET Bulletin 65 Equations 6 and 10 likely underestimate the potential for reflection and hot spots in some situations in real-life situations.

This report includes the FCC's reflection factors of 60% and 100%, and also

reflection factors of 1000% and 2000% that are more in line with those reported in Hondou, 2001; Hondou, 2006 and Vermeeren et al, 2010. The use of a 1000% reflection factor in this report is still conservative in comparison to Hondou, 2006. A 1000% reflection factor is 12% of Hondou's larger power density prediction (or 121 times, rather than 1000 times)/ The 2000% reflection factor is 22% of Hondou's figure (or 441 times in comparison to 2000 times higher power density in Hondou, 2006).

Peak Power Limits

In addition to time-averaged public safety limits that require RF exposures to be time-averaged over a 30 minute time period, the FCC also addresses peak power exposures. The FCC refers back to the ANSI/IEEE C95.1-1992 standard to define what peak power limits are.

The ANSI/IEEE C95.1-1999 standard defines peak power density as "*the maximum instantaneous power density occurring when power is transmitted*." (p. 4) Thus, there is a second method to test FCC compliance that is not being assessed in any FCC Grants of Authorization.

> "*Note that although the FCC did not explicitly adopt limits for peak power density, guidance on these types of exposures can be found in Section 4.4 of the ANSI/IEEE C95.1-1992 standard.*"
>
> *Page 10, OET 65*

The ANSI/IEEE limit for peak power to which the FCC refers is:

> *"For exposures in uncontrolled environments, the peak value of the mean squared field strengths should not exceed 20 times the square of the allowed spatially averaged values (Table 2) at frequencies below 300 MHz, or <u>the equivalent power density of 4 mW/cm2 for f between 300 MHz and 6 GHz</u>".*

The peak power exposure limit is 4000 uW/cm2 for all smart meter frequencies (all transmitting antennas) for any instantaneous RF exposure of 4 milliwatts/cm2 (4 mW/cm2) or higher which equals 4000 microwatts/cm2 (uW/cm2).

This peak power limit applies to all smart meter frequencies for both the smart meter (two-antenna configuration) and the collector meter (three-antenna configuration). All these antennas are within the 300 MHz to 6 GHz frequency range where the 4000 uW/cm2 peak power limit applies (Table 3, ANSI/IEEE C95.1-1999, page 15).

Smart meters emit frequencies within the 800 MHz to 2400 MHz range.

Exclusions

This peak power limit applies to all parts of the body with the important exception of the eyes and testes.

The ANSI/IEEE C95.1-1999 standard specifically excludes exposure of the eyes and testes from the peak power limit of 4000 uW/cm2*. However, nowhere in the ANSI/IEEE nor the FCC OET 65 documents is there a lower, more protective peak power limit given for the eyes and testes (see also Appendix C).

> *"The following relaxation of power density limits is allowed for exposure of all parts of the body <u>except the eyes and testes</u>." (p.15)*
>
> *"Since most exposures are not to uniform fields, a method has been derived, based on the demonstrated peak to whole-body averaged SAR ratio of 20, for equating nonuniform field exposure and partial body exposure to an equivalent uniform field exposure. This is used in this standard to allow relaxation of power density limits for partial body exposure<u>, except in the case of the eyes and the testes</u>." (p.20)*

"In the case of the eyes and testes, direct relaxation of power density limits is not permitted."(p. 30)

*Note: This leaves unanswered what instantaneous peak power is permissible from smart meters. The level must be below 4000 uW/cm2. This report shows clearly that smart meters can create instantaneous peak power exposures where the face (eyes) and body (testes) are going to be in close proximity to smart meter RF pulses. RF levels at and above 4000 uW/cm2 are likely to occur if a person puts their face close to the smart meter to read data in real time. The digital readout of the smart meter requires close inspection, particularly where there is glare or bright sunlight, or low lighting conditions. Further, some smart meters are installed inside buildings within inches of occupied space, virtually guaranteeing exposures that may violate peak power limits. Violations of peak power limits are likely in these circumstances where there is proximity within about 6" and highly reflective surfaces or metallic objects. The eyes and testes are not adequately protected by the 4000 uW/cm2 peak power limit, and in the cases described above, may be more vulnerable to damage (Appendix C for further discussion).

METHODOLOGY

Radiofrequency fields associated with SMART Meters were calculated following the methodology described here. Prediction methods specified in Federal Communications Commission, Office of Engineering and Technology Bulletin 65 Edition 97-01, August 1997 were used in the calculations.[1]

Section 2 of FCC OET 65 provides methods to determine whether a given facility would be in compliance with guidelines for human exposure to RF radiation. We used equation (3)

$$S = \frac{P \times G \times \partial}{4 \times \pi \times R^2} = \frac{EIRP \times \partial}{4 \times \pi \times R^2} = \frac{1.64 \times ERP \times \partial}{4 \times \pi \times R^2}$$

where:

S = power density (in $\mu W/cm^2$)
P = power input to the antenna (in W)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
∂ = duty cycle of the transmitter (percentage of time that the transmitter actually transmits over time)
R = distance to the center of radiation of the antenna
EIRP = PG
ERP = 1.64 EIRP

where:

EIRP = is equivalent (or effective) isotropically radiated power referenced to an isotropic radiator
ERP = is equivalent (or effective) radiated power referenced to a half-wave dipole radiator

Analysis input assumptions

1. SMART Meters [SK9AMI-4] have two RF transmitters (antennas) and are the type of smart meters typically installed on most buildings. They contain two antennas that transmit RF signals (916 MHz LAN and 2405 MHz Zigbee). The antennas CAN transmit simultaneously, and thus the maximum RF exposure is determined by the summation of power densities (from the FCC Certification Exhibit titled RF Exposure Report for FCC ID: SK9AMI-4).

   Model SK9AMI-4 transmits on 915 MHz is designated as LAN Antenna Gain for each model.

   a. Transmitter Power Output (TPO) used is as shown on the grant issued by the Telecommunications Certification Body (TCB).

   b. Antenna gain in dBi (decibels compared to an isotropic radiator) used comes from the ACS Certification Exhibit.

2. Collector Meters [SK9AMI-2A] have three RF transmitters (antennas) and are installed where the utility needs them to relay RF signals from surrounding smart meters in a neighborhood. Collector meters contain a third antenna (GSM 850 MHz, 915 MHz LAN and 2405 MHz Zigbee). Collector meters can be placed on any building where a collector meter is needed to relay signals from the surrounding area. Estimates of the number of collector meters varies between one per 500 to one per 5000 smart meters. Collector meters will thus 'piggyback' the RF signals of hundreds or thousands of smart meters through the one collector meter. In a collector meter, only two of the three antennas can transmit simultaneously (the 915 MHz LAN and the GSM 850 MHz (from the FCC Certification Exhibit titled RF Exposure Report for FCC ID: SK9AMI-2A).

3. The Cell Relay transmitting at 2480 MHz is <u>not</u> on most meters and <u>not</u> considered in this analysis.

    a. Transmitter Power Output (TPO) used is as shown on the grant issued by the Telecommunications Certification Body (TCB).

    b. Antenna gain in dBi (decibels compared to an isotropic radiator) used comes from the ACS Certification Exhibit.

ERP (Effective Radiated Power) used in the computer modeling here is calculated using the TPO and antenna gain established for each model

Red figures used to Calculate ERP		ACS and TCB Certification data sheet							
		SK9AMI-2A				SK9AMI-4			
		ACS			TCB	ACS			TCB
Radio	Frequency	dBm	Watts	dBi	Watts	dBm	Watts	dBi	Watts
GSM	850	31.8	1.5136	-1.0					
LAN	915	21.92	0.1556	3.0		24.27	0.2673	**2.2**	**0.267**
LAN	916								0.257
GSM	1900	28.7	0.7413	1.0					
Register	2405	18.71	0.0743	**1.0**	**0.074**	19.17	0.0826	4.4	
Cell Relay	2480	-14.00	0.00004	4.00					

Assumptions: TPO per TCB , Antenna Gain per ACS Certification

ERP Calculation: **Bold** figures are used for single meter ERP in modeling

Type	TPO	dBi	dB	Mult	ERP	Freq	
1900 GSM	0.741	1.0	-1.15	0.77	0.5689	1900	
850 GSM	1.514	-1.0	-3.15	0.48	0.7328	850	Model
RFLAN	0.267	2.2	0.05	1.01	**0.2704**	915	SK9AMI-4
ZIG BEE	0.074	1.0	-1.15	0.77	**0.0570**	2405	SK9AMI-2A

Reflection Factor

This equation is modified with the inclusion of a ground reflection factor as recommended by the FCC. The ground reflection factor accounts for possible ground reflections that could enhance the resultant power density. A 60% (0.6) enhancement would result in a 1.6 (1 + 0.6) increase of the field strength or a 2.56 = $(1.6)^2$ increase in the power density. Similar increases for larger enhancements of the field strength are calculated by the square of the original field plus the enhancement percentage. [2.3.4]

<u>Reflection Factors:</u>

$60\% = (1 + 0.6)^2 = 2.56$ times
$100\% = (1 + 1)^2 = 4$ times
$1000\% = (1 + 10)^2 = 121$ times
$2000\% = (1 + 20)^2 = 441$ times

Duty Cycle

How frequently SMART Meters can and will emit RF signals from each of the antennas within the meters is uncertain, and subject to wide variations in estimation. For this reason, and because FCC OET 65 mandates a 100% duty cycle (continuous exposure where the public cannot be excluded) the report gives RF predictions for all cases from 1% to 100% duty cycle at 10% intervals. The reader can see the variation in RF emissions predicted at various distances from the meter (or bank of meters) using this report at all duty cycles. Thus, for purposes of this report, duty cycles have been estimated from infrequent to continuous. Duty cycles for SMART Meters were calculated at:

Duty cycle ∂:

1%	50%
5%	60%
10%	70%
20%	80%
30%	90%
40%	100%

Continuous Exposure

FCC Bulletin OET 65 and the ANSI/IEEE C95.1-1992, 1999 requires that continuous exposure be calculated for situations where there is uncontrolled public access. Continuous exposure in this case means reading the tables at 100% duty cycle.

> *"Another feature of the exposure guidelines is that exposures, in terms of power density, E2 or H2, may be averaged over certain periods of time with the average not to exceed the limit for continuous exposure.*[11]

> *"As shown in Table 1 of Appendix A, the averaging time for occupational/controlled exposures is 6 minutes, while the averaging time for general population/uncontrolled exposures is 30 minutes. It is important to note that for general population/uncontrolled exposures it is often not possible to control exposures to the extent that averaging times can be applied. In those situations, it is often necessary to assume continuous exposure."* (FCC OET 65, Page 15)

Calculation Distances in Tables (3-inch increments)

Calculations were performed in 3-inch (.25 foot) increments from the antenna center of radiation. Calculations have been taken out to a distance of 96 feet from the antenna center for radiation for each of the conditions above. The antenna used for the various links in a SMART Meter is assumed to be at the center of the SMART Meter from front to back – approximately 3 inches from the outer surface of the meter.

Calculations have also been made for a typical nursery and kitchen. In the nursery it has been assumed that the baby in his or her crib that is located next to the wall where the electric SMART Meters are mounted. The closest part of the baby's body can be as close as 11 inches* from the meter antenna. In the kitchen it has been assumed that a person is standing at the counter along the wall where the electric SMART Meters are mounted. In that case the closest part of the adult's body can be located as close to the meter antenna as 28 inches.

The exposure limits are variable according to the frequency (in megahertz). Table 1, Appendix A show exposure limits for occupational (Part A) and uncontrolled public (Part B) access to radiofrequency radiation such as is emitted from AM, FM, television and wireless sources.

* Flush-mounted main electric panels that house smart meters are commonly installed; placing smart meters 5” 6” closer to occupied space than box-mounted main electric panels that sit outward on exterior building walls. Assumptions on spacing are made for flush-mounted panels.

Conditions Influencing Radiofrequency Radiation Level Safety

The location of the meter in relation to occupied space, or outside areas of private property such as driveways, walk-ways, gardens, patios, outdoor play areas for children, pet shelters and runs, and many typical configurations can place people in very close proximity to smart meter wireless emissions. In many instances, smart meters may be within inches or a few feet of occupied space or space that is used by occupants for daily activities.

Factors that influence how high RF exposures may be include, but are not limited to where the meter is installed in relation to occupied space, how often the meters are emitting RF pulses (duty cycle), and what reflective surfaces may be present that can greatly intensify RF levels or create 'RF hot spots' within rooms, and so on. In addition, there may be multiple wireless meters installed on some multi-family residential buildings, so that a single unit could have 20 or more electric meters in close proximity to each other, and to occupants inside that unit. Finally, some meters will have higher RF emissions, because – as collector units – their purpose is to collect and resend the RF signals from many other meters to the utility. A collector meter is estimated to be required for every 500 to 5000 buildings. Each collector meter contains three, rather than two transmitting antennas. This means higher RF levels will occur on and inside buildings with a collector meter, and significantly more frequent RF transmissions can be expected. At present, there is no way to predict whose property will be used for installation of collector meters.

People who are visually reading the wireless meters 'by sight' or are visually inspecting and/or reading the digital information on the faceplate may have

their eyes and faces only inches from the antennas.

Current standards for peak power limit do not have limits to protect the eyes and testes from instantaneous peak power from smart meter exposures, yet relevant documents identify how much more vulnerable these organs are, and the need for such safety limits to protect the eyes and testes.

No Baseline RF Assessment

Smart meter and collector meter installation are taking place in an information vacuum. FCC compliance testing takes place in an environment free of other sources of RF, quite unlike typical urban and some rural environments. There is no assessment of baseline RF conditions already present (from AM, FM, television and wireless communication facilities (cell towers), emergency and dispatch wireless, ham radio and other involuntary RF sources. Countless properties already have elevated RF exposures from sources outside their own control.

Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

Neither the FCC, the CPUC, the utility nor the consumer know what portion of the allowable public safety limit is already being used up or pre-empted by RF from other sources already present in the particular location a smart meter may be installed and operated.

Consumers, for whatever personal reason, choice or necessity who have already eliminated all possible wireless exposures from their property and lives, may now face excessively high RF exposures in their homes from smart meters. This may force limitations on use of their otherwise occupied space, depending on how the meter is located, building materials in the structure, and how it is furnished.

RESULTS, FINDINGS AND CONCLUSIONS

The installation of wireless 'smart meters' in California can produce significantly high levels of radiofrequency radiation (RF) depending on many factors (location of meter(s) in relation to occupied or usable space, duty cycle or frequency of RF transmissions, reflection and re-radiation of RF, multiple meters at one location, collector meters, etc).

Power transmitters that will relay information from appliances inside buildings with wireless smart meters produce high, localized RF pulses. Any appliance that contains a power transmitter (for example, dishwashers, washers, dryers, ranges and ovens, convection ovens, microwave ovens, flash water heaters, refrigerators, etc) will create another 'layer of RF signals' that may cumulatively increase RF exposures from the smart meter(s).

It should be emphasized that no single assertion of compliance can adequately cover the vast number of site-specific conditions in which smart meters are installed. These site-specific conditions determine public exposures and thus whether they meet FCC compliance criteria.

Tables in this report show either distance to an FCC safety limit (in inches) or they show the predicted (calculated) RF level at various distances in microwatts per centimeter squared (uW/cm2).

Both depictions are useful to document and understand RF levels produced by smart meters (or multiple smart meters) and by collector meters (or collections of one collector and multiple smart meters).

Large differences in the results of computer modeling occur in this report by

bracketing the uncertainties (running a sufficient number of computer scenarios) to account for variability introduced by possible duty cycles and possible reflection factors.

FCC equations from FCC OET 65 provide for calculations that incorporate 60% or 100% reflection factors. Studies cited in this report document higher possible reflections (in highly reflective environments) and support the inclusion of higher reflection factors of 1000% and 2000% based on Vermeeren et al, 2010, Hondou et al, 2006 and Hondou, 2002. Tables in the report provide the range of results predicted by computer modeling for duty cycles from 1% to 100%, and reflection factors of 60%, 100%, 1000%, and 2000% for comparison purposes. FCC violations of time-weighted average calculations and peak power limit calculations come directly from FCC OET 65 and from ANSI/IEEE c95.1-1992, 1999. Duty cycle (or how frequently the meters will produce RF transmissions leading to elevated RF exposures) is uncertain, so the full range of possible duty cycles are included, based on best available information at this date.

- Tables 1-2 show radiofrequency radiation (RF) levels at 6" (to represent a possible face exposure). These are data tables.
- Tables 3-4 show RF levels at 11" (to represent a possible nursery/bedroom exposure). These are data tables.
- Tables 5-6 show RF levels at 28" to represent a possible kitchen work space exposure. These are data tables.
- Tables 7-9 show the distance to the FCC violation level for time-weighted average limits and for peak power limits (in inches). These are data tables.
- Tables 10-15 show where FCC violations may occur at the face, in the nursery or in the kitchen scenarios. These are colored tables

highlighting where FCC violations may occur under all scenarios.

- Tables 16-29 show comparisons of smart meter RF levels with studies that report adverse health impacts from low-intensity, chronic exposure to similar RF exposures. These are colored tables highlighting where smart meter RF levels exceed levels associated with adverse health impacts in published scientific studies.
- Tables 30-31 show RF levels in comparison to Medtronics advisory limit for MRI exposures to radiofrequency radiation at 0.1 W/Kg or about 250 uW/cm2. These are colored tables highlighting where smart meter RF levels may exceed those recommended for RF exposure.
- Tables 32-33 show RF levels from smart meters in comparison to the BioInitiative Report recommendation of 0.1 uW/cm2 for chronic exposure to pulsed radiofrequency radiation.

Findings

RF levels from the various scenarios depicting normal installation and operation, and possible FCC violations have been determined based on both time-averaged and peak power limits (Tables 1 - 14).

Potential violations of current FCC public safety standards for smart meters and/or collector meters in the manner installed and operated in California are illustrated in this Report, based on computer modeling (Tables 10 – 17).

Tables that present data, possible conditions of violation of the FCC public safety limits, and comparisons to health studies reporting adverse health impacts are summarized (Tables 18 – 33).

Where do predicted FCC violations occur for the 655 uW/cm2 time-averaged public safety limit at the face at 6" distance from the meter?

Table 10 shows that for one smart meter, no violations are predicted to occur at 60% or 100% reflection factor at any duty cycle, but violations are predicted to occur with nearly all scenarios using either 1000% or 2000% reflection factors.

Table 10 also shows that for multiple smart meters, FCC violations are predicted to occur at 60% reflection factor @ 50% to 100% duty cycles; and also at 100% reflection factor @ 30% to 100% duty cycle. All scenarios using either 1000% or 2000% reflection factors indicate FCC violations can occur (or conservatively at 12% to 22% of those in Hondou et al, 2006).

Table 11 shows that for one collector meter, one violation occurs at 60% @ 100% duty cycle; and at 100% reflection factor for duty cycles between 60% and 100%. Violations are predicted to occur at all scenarios using either 1000% or 2000% reflection factors.

Table 11 also shows that for one collector meter plus multiple smart meters, FCC violations can occur at 60%reflection factor @ 40% to 100% duty cycles; and also at 100% reflection factor @ 30% to 100% duty cycle. All scenarios using either 1000% or 2000% reflection factors indicate FCC violations can occur.

Where do predicted FCC violations occur for the 655 uW/cm2 time-averaged public safety limit in the nursery crib at 11" distance?

Table 12 shows that for one smart meter, no violations are predicted to occur at 60% or 100% reflection factor at any duty cycle, but violations would be predicted with nearly all scenarios using either 1000% or 2000% reflection factors.

Table 12 also shows that for multiple smart meters, no FCC violations are predicted to occur at 60% reflection factor at any duty cycle; and also at 100% reflection factor @ 90% and 100% duty cycle. All scenarios using either 1000% or 2000% reflection factors indicate FCC violations can occur.

Table 13 shows that for one collector meter, one violation occurs at 100% reflection @100% duty cycle. No violations at 60% reflection are predicted. Violations are predicted to occur at all scenarios using 1000% reflection except @ 1% duty cycle. All 2000% reflection scenarios indicate FCC violations can occur.

Table 13 shows that for one collector meter plus multiple smart meters, FCC violations are not predicted to occur at 60% reflection factor. At 100% reflection factor, violations are predicted at 60% to100% duty cycles. FCC violations are predicted for all1000% and 2000% reflection factors with the exception of 1000% reflection at 1% duty cycle.

Where do predicted FCC violations occur for the 655 uW/cm2 time-averaged public safety limit in the kitchen work space at 28" distance?

Table 14 shows that for one smart meter, no violations are predicted to occur at 60% or 100% reflection factor at any duty cycle. Violations would be predicted with scenarios of 1000% reflection @ 70% to 100% duty cycles and at 2000% reflection factor @ 20% to 100% duty cycles.

Table 14 also shows that for multiple smart meters, no FCC violations are predicted to occur at 60% or at the 100% reflection factors at any duty cycle. Violations are predicted at 1000% reflection factor @ 70% to 100% duty cycles and at 2000% reflection factor @20% to 100% duty cycles.

Table 15 shows that for one collector meter, one violation occurs at 100% reflection @100% duty cycle. No violations at 60% reflection are predicted. Violations are predicted to occur at all scenarios using 1000% reflection except @ 1% duty cycle. All 2000% reflection scenarios indicate FCC violations can occur.

Table 15 shows that for one collector meter plus multiple smart meters, FCC violations are not predicted to occur at 60% or at 100% reflection factors at any duty cycle. At 1000% reflection factor, violations are predicted at 30% to 100% duty cycles. FCC violations are also predicted at 2000% reflection factor @10 to 100% duty cycles.

Where can peak power limits be violated? The peak power limit of 4000 uW/cm2 instantaneous public safety limit at 3" distance? This limit may be exceeded wherever smart meters and collector meters (face plate or any portion within 3" of the internal antennas can be accessed directly by the public.

Table 16 shows that for one smart meter, no violations are predicted to occur at 60% or 100% reflection factor at any duty cycle. Peak power limit violations would be predicted with scenarios of 1000% reflection @ 10% to

100% duty cycles and at 2000% reflection factor @ 10% to 100% duty cycles.

Table 16 also shows that for multiple smart meters, peak power limit violations are predicted to occur at 60% reflection @ 60% to 100% duty cycle and for 100% reflection @ 40% to 100% duty cycles. Violations are predicted at 1000% reflection factor @ 10% to 100% duty cycles and at 2000% reflection factor @1% to 100% duty cycles.

Table 17 shows that for one collector meter, peak power limit violations are predicted to occur at 60% reflection @80% to 100% duty cycles and at 100% reflection @ 50% to 100% duty cycles. Violations of peak power limit are predicted to occur at all scenarios using 1000% reflection except @ 1%; and for 2000% reflection violations of peak power limit are predicted at all duty cycles.

Table 17 shows that for one collector meter plus multiple smart meters, peak power limit violations are predicted to occur at 60% @ 40% to 100% and 100% reflection @ 30% to 100% duty cycles. At 1000% and 2000% reflection factors, peak power limit violations are predicted at all duty cycles.

Where are RF levels associated with inhibition of DNA repair in human stem cells at 92.5 uW/cm2 exceeded the in the nursery crib at 11" distance?

Table 18 shows that for one smart meter, RF exposures associated with inhibition of DNA repair in human stem cells are predicted to occur at 60% reflection factor@ 70% to 100% duty cycles, and at 100% reflection factor @ 50% to 100% duty cycles. All scenarios using either 1000% or 2000% reflection factors exceed these RF exposures except 1000% at 1% duty cycle.

Table 18 also shows that for multiple smart meters, RF exposures associated with inhibition of DNA repair in human stem cells are predicted to occur at 60% reflection factor@ 20% to 100% duty cycles, and at 100% reflection factor @ 20% to 100% duty cycles. All scenarios using either 1000% or 2000% reflection factors exceed these RF exposure levels except 1000% at 1% duty cycle.

Table 19 shows that for one collector meter, RF exposures associated with inhibition of DNA repair in human stem cells are predicted to occur at 60% reflection factor@ 30% to 100% duty cycles, and at 100% reflection factor @ 20% to 100% duty cycles. All scenarios using either 1000% or 2000% reflection factors exceed these RF exposure levels.

Table 19 shows that for one collector meter plus multiple smart meters, RF exposures associated with inhibition of DNA repair in human stem cells are predicted to occur at 60% reflection factor@ 20% to 100% duty cycles, and at 100% reflection factor @ 10% to 100% duty cycles. All scenarios using either 1000% or 2000% reflection factors exceed these RF exposure levels. *Where are RF levels associated with pathological leakage of the blood-brain barrier at 0.4 – 8 uW/cm2 exceeded the in the nursery crib at 11" distance?*

Table 20 shows that for one smart meter, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 10% to 100% duty cycles, and at 100% reflection factor @ 5% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 20 also shows that for multiple smart meters, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 5% to 100% duty cycles, and at 100% reflection factor @ 5% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 21 shows that for one collector meter, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 5% to 100% duty cycles, and at 100% reflection factor @ 5% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 21 shows that for one collector meter plus multiple smart meters, .RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 5% to 100% duty cycles, and at 100% reflection factor @ 1% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Where are RF levels associated with adverse neurological symptoms, cardiac problems and increased cancer risk exceeded in the nursery crib at 11" distance?

Table 22 shows that for one smart meter, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 22 shows that for multiple smart meters, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 23 shows that for one collector meter, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 23 shows that for one collector meter plus multiple smart meterss, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Where are RF levels associated with inhibition of DNA repair in human stem cells at 92.5 uW/cm2 exceeded the in the kitchen work space at 28" distance?

Table 24 shows that for one smart meter, RF levels do not exceed those associated with inhibition of DNA repair at 60% or 100% reflection factor at any duty cycle. RF levels are exceeded at 1000% @ 10% to 100% duty cycles; and at 2000% reflection factor @ 5% to 100% duty cycles.

Table 24 also shows that for multiple smart meters, RF levels do not exceed those associated with inhibition of DNA repair at 60% or 100% reflection factor at any duty cycle. RF levels are exceeded at 1000% @ 5% to 100% duty cycles; and at 2000% reflection factor @ 1% to 100% duty cycles.

Table 25 shows that for one collector meter, RF levels do not exceed those associated with inhibition of DNA repair at 60% at any duty cycle; at 100% reflection factor they are exceeded at 70% to 100% duty cycles.. RF levels are exceeded at 1000% @ 5% to 100% duty cycles; and at 2000% reflection factor @ 1% to 100% duty cycles.

Table 25 shows that for one collector meter plus multiple smart meters, RF levels exceed those associated with inhibition of DNA repair at 60% reflection@100% duty cycle; at 100% reflection factor they are exceeded at 70% to 100% duty cycles.. RF levels are exceeded at 1000% @ 5% to 100% duty cycles; and at 2000% reflection factor @ 1% to 100% duty cycles.

Where are RF levels associated with pathological leakage of the blood-brain barrier and neuron death at 0.4 – 8 uW/cm2 risk in the kitchen work space at 28" distance?

Table 26 shows that for one smart meter, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 40% to 100% duty cycles, and at 100% reflection factor @ 30% to 100% duty cycles, and at all 1000% and 2000% reflections. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the kitchen work space except at 1% duty cycle for 60% and 100% reflections.

Table 26 also shows that for multiple smart meters, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 30% to 100% duty cycles, and at 100% reflection factor @ 20% to 100% duty cycles, and at all 1000% and 2000% reflections. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the kitchen.

Table 27 shows that for one collector meter, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 20% to 100% duty cycles, and at 100% reflection factor @ 10% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Table 27 shows that for one collector meter plus multiple smart meters, .RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 20% to 100% duty cycles, and at 100% reflection factor @ 20% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Where are RF levels associated with adverse neurological symptoms, cardiac problems and increased cancer risk in the kitchen work space at 28" distance?

Table 28 shows that for one smart meter, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Table 28 shows that for multiple smart meters, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Table 29 shows that for one collector meter, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Table 29 shows that for one collector meter plus multiple smart meterss, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Where do RF levels exceed the Medtronics Safety Advisory?

Table 30: At no duty cycles for either 60% or 100% reflection factors; between 10% and 100% duty factors for 1000% and between 5% and 100% duty factors for 2000% reflection (for one smart meter).

Table 30: At 60% reflection @ 60% to 100% duty cycle; and at 100% reflection @ 40% to 100% duty cycle; at 1000% reflection @ 5% to 100% duty cycle and for all duty cycles at 2000% reflection (for multiple smart meters).

Table 31: At 60% reflection @ 70% to 100% duty cycle; at 100% reflection at 50% to 100% duty cycles; at 1000% reflection @ 5% to 100% and at all duty cycles for 2000% reflection (for one collector meter).

Table 31: At 60% reflection @ 40% to 100% duty cycle; at 100% reflection at 30% to 100% duty cycles; and at all duty cycles for both 1000% reflection and for 2000% reflection (for one collector meter plus three smart meters).

Where are RF levels associated with smart meters in all their configurations (one meter, multiple smart meters, one collector meter, one collector plus multiple smart meters) above those recommended in the BioInitiative Report (2007)?

Tables 32 and 33 depict the distance from the center of radiation for the smart meter(s) and collector meter scenarios in feet. The distances (in feet) at which RF levels exceed the BioInitiative Report recommended limit of 0.1 uW/cm2 is as small as 3.4' (one smart meter at 60% reflection and 1% duty cycle). At 60% reflection and 100% duty cycle, the distance to the BioInitiative recommended limit increases to 34 feet for one smart meter.

When multiples of smart meters are considered, the shortest distance to where the BioInitiative Report recommended limit is exceeded is 9.7 feet (for 60% reflection @ 1% duty cycle). It increases to 97' @100% duty cycle for multiple smart meters.

For a single collector meter, the shortest distance to a BioInitiative Report exceedence is 5.9 feet (60% reflection @ 1% duty cycle). At 60% reflection and 100% duty cycle, it increases to 59 feet.

For a collector and multiple smart meters, the shortest distance is 10.9 feet at 60% reflection @ 1% duty cycle, and increases to108 feet at 100% duty cycle.

Conclusions

FCC compliance violations are likely to occur under widespread conditions of installation and operation of smart meters and collector meters in California. Violations of FCC safety limits for uncontrolled public access are identified at distances within 6" of the meter. Exposure to the face is possible at this distance, in violation of the time-weighted average safety limits (Tables 10-11). FCC violations are predicted to occur at 60% reflection and 100% reflection factors*, both used in FCC OET 65 formulas for such calculations for time-weighted average limits. Peak power limits are not violated at the 6" distance (looking at the meter) but can be at 3"

from the meter, if it is touched.

This report has also assessed the potential for FCC violations based on two examples of RF exposures in a typical residence. RF levels have been calculated at distances of 11" (to represent a nursery or bedroom with a crib or bed against a wall opposite one or more meters); and at 28" (to represent a kitchen work space with one or more meters installed on the kitchen wall).

FCC compliance violations are identified at 11" in a nursery or bedroom setting using Equation 10* of the FCC OET 65 regulations (Tables 12-13). These violations are predicted to occur where there are multiple smart meters, or one collector meter, or one collector meter mounted together with several smart meters.

FCC compliance violations are not predicted at 28" in the kitchen work space for 60% or for 100% reflection calculations. Violations of FCC public safety limits are predicted for higher reflection factors of 1000% and 2000%, which are not a part of FCC OET 65 formulas, but are included here to allow for situations where site-specific conditions (highly reflective environments, for example, galley-type kitchens with many highly reflective stainless steel or other metallic surfaces) may be warranted (see Methodology Section).

In addition to exceeding FCC public safety limits under some conditions of installation and operation, smart meters can produce excessively elevated RF exposures, depending on where they are installed. With respect to absolute RF exposure levels predicted for occupied space within dwellings, or outside areas like patios, gardens and walk-ways, RF levels are predicted to be substantially elevated within a few feet to within a few tens of feet from the

meter(s).

For example, one smart meter at 11" from occupied space produces somewhere between 1.4 and 140 microwatts per centimeter squared (uW/cm2) depending on the duty cycle modeled (Table 12). Since FCC OET 65 specifies that continuous exposure be assumed where the public cannot be excluded (such as is applicable to one's home), this calculation produces an RF level of 140 uW/cm2 at 11" using the FCCs lowest reflection factor of 60%. Using the FCC's reflection factor of 100%, the figures rise to 2.2 uW/cm2 – 218 uW/cm2, where the continuous exposure calculation is 218 uW/cm2 (Table 12). These are very significantly elevated RF exposures in comparison to typical individual exposures in daily life. Multiple smart meters in the nursery/bedroom example at 11" are predicted to generate RF levels from about 5 to 481 uW/cm2 at the lowest (60%) reflection factor; and 7.5 to 751 uW/cm2 using the FCCs 100% reflection factor (Table 13). Such levels are far above typical public exposures.

RF levels at 28" in the kitchen work space are also predicted to be significantly elevated with one or more smart meters (or a collector meter alone or in combination with multiple smart meters). At 28" distance, RF levels are predicted in the kitchen example to be as high as 21 uW/cm2 from a single meter and as high as 54.5 uW/cm2 with multiple smart meters using the lower of the FCCs reflection factor of 60% (Table 14).

Using the FCCs higher reflection factor of 100%, the RF levels are predicted to be as high as 33.8 uW/cm2 for a single meter and as high as 85.8 uW/cm2 for multiple smart meters (Table 14). For a single collector meter, the range is 60.9 to 95.2 uW/cm2 (at 60% and 100% reflection factors, respectively)

(from Table 15).

Table 16 illustrates predicted violations of peak power limit (4000 uW/cm2) at 3" from the surface of a meter. FCC violations of peak power limit are predicted to occur for a single collector meter at both 60% and 100% reflection factors. This situation might occur if someone touches a smart meter or stands directly in front.

Uncertainty About Actual RF Levels

Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

Neither the FCC, the CPUC, the utility nor the consumer know what portion of the allowable public safety limit is already being used up or pre-empted by RF from other sources already present in the particular location a smart meter may be installed and operated.

Consumers, for whatever personal reason, choice or necessity who have already eliminated all possible wireless exposures from their property and lives, may now face excessively high RF exposures in their homes from smart meters. This may force limitations on use of their otherwise occupied

space, depending on how the meter is located, building materials in the

structure, and how it is furnished.

People who are afforded special protection under the federal Americans with Disabilities Act are not sufficiently acknowledged nor protected. People who have medical and/or metal implants or other conditions rendering them vulnerable to health risks at lower levels than FCC RF limits may be particularly at risk (Tables 30-31). This is also likely to hold true for other subgroups, like children and people who are ill or taking medications, or are elderly, for they have different reactions to pulsed RF. Childrens' tissues absorb RF differently and can absorb more RF than adults (Christ et al, 2010; Wiart et al, 2008). The elderly and those on some medications respond more acutely to some RF exposures.

Eyes and Testes - Safety standards for peak exposure limits to radiofrequency have not been developed to take into account the particular sensitivity of the eyes, testes and other ball shaped organs. There are no peak power limits defined for the eyes and testes, and it is not unreasonable to imagine situations where either of these organs comes into close contact with smart meters and/or collector meters, particularly where they are installed in multiples (on walls of multi-family dwellings that are accessible as common areas).

What can be determined from the relevant standards (FCC and ANSI/IEEE and certain IEEE committee documents is that the eye and testes are potentially much more vulnerable to damage, but that there is no scientific basis on which to develop a new, more protective safety limit. What is certain is that the peak power limit of 4000 uW/cm2 exceeds what is safe (Appendix C).

In summary, no positive assertion of safety can be made by the FCC, nor relied upon by the CPUC, with respect to pulsed RF when exposures are chronic and occur in the general population. Indiscriminate exposure to environmentally ubiquitous pulsed RF from the rollout of millions of new RF sources (smart meters) will mean far greater general population exposures, and potential health consequences. Uncertainties about the existing RF environment (how much RF exposure already exists), what kind of interior reflective environments exist (reflection factor), how interior space is utilized near walls), and other characteristics of residents (age, medical condition, medical implants, relative health, reliance on critical care equipment that may be subject to electronic interference, etc) and unrestrained access to areas of property where meter is located all argue for caution.

Electronic Interference

Consumers may experience electronic interference (electromagnetic interference or EMI) from smart meter wireless signals. The FCC also is charged with investigating consumer complaints about electronic interference.

> *"The FCC requires that unlicensed low-power RF devices must not create interference and users of such equipment must resolve any interference problems or cease operation. According to the FCC (47CFR Part 15): "The operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference. Operation shall not resume until the condition causing the harmful interference has been corrected."*
>
> (EPRI, 2010)

Medical and other critical care equipment in the home environment may not work, or work properly due to electronic interference from smart meters.

Security systems, surveillance monitors and wireless intercoms may be rendered inoperable or unreliable. Some cordless telephones do not work reliably, or have substantial interference from smart meter RF emissions.

Electronic equipment and electrical appliances may be damaged or have to be replaced with other, newer equipment in order not to be subject to electromagnetic interference from smart meter RF bursts.

Americans With Disabilities Act

People who have medical implants, particularly metal implants, may be more sensitive to spurious RF exposures for two reasons. Electromagnetic interference (EMI) with critical care medical equipment and medical implants is a potentially serious threat. Patients with deep-brain stimulators (Parkinson's disease patients) have reported adverse health effects due to RF from various environmental sources like security gates and RFID scanners. Patients with deep brain stimulators have reported the devices to be reprogramming or electrodes shut-down as a result of encounters with wireless RFID scanners. One manufacturer, Medtronics, has issued a warning for DBS implant patients to limit RF exposure to less than 0.1 W/Kg SAR (or sixteen times lower than for the general public) for MRI exposures.

The IEEE SC4 committee (2001) considered changes to existing ANSI/IEEE standards adopted in 1992 (C95.1-1992). They discussed vulnerable organs

(eyes, testes) and metallic implants that can intensify localized RF exposures within the body and its tissues.

> *"Question 20: Are there specific tissues or points within the body that have particularly high susceptibilities to local heating due to thermal properties in the immediate vicinity of the tissue?"*

Committee minutes include the following discussion on metallic implants.

> "*Metallic implants are an interesting example of this question. There can be very localized high field concentrations around the tips of long metal structures, in the gaps of wire loops. Of course, these metal devices don't create energy, but can only redistribute it, so the effect is limited to some extent. Also the high thermal conductivity and specific heat capacity make them good thermal sinks for any localized heat sources generated around them.*"

Since deep brain stimulators in Parkinson's patients involve metal implants that are essentially long metal structures with tips that interface with brain tissue and nerves within the brain and body, exposing such patients with implants to high levels of pulsed RF that can produce localized, high RF within the body is certainly inadvisable. It is clear the IEEE SC4 committee recognized the potential risk by to calling such implanted metallic devices good 'thermal sinks' for localized heating dissipation.

The FCC's Grants of Authorization and other certification procedures do not ensure adequate safety to safeguard people under Department of Justice protection under the Americans with Disabilities Act.

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Appendix A Tables A1- A 48

RADIOFREQUENCY RADIATION VERSUS DISTANCE

One Smart Meter

Table A1	60% Reflection	(1%-100% duty cycles in each table)
Table A2	100% Reflection	(1%-100% duty cycles in each table)
Table A3	1000% Reflection*	(1%-100% duty cycles in each table)
Table A4	2000% Reflection*	(1%-100% duty cycles in each table)

Multiple Smart Meters (Four)**

Table A5	60% Reflection	(1%-100% duty cycles in each table)
Table A6	100% Reflection	(1%-100% duty cycles in each table)
Table A7	1000% Reflection	(1%-100% duty cycles in each table)
Table A8	2000% Reflection	(1%-100% duty cycles in each table)

One Collector Meter

Table AA9	60% Reflection	(1%-100% duty cycles in each table)
Table A10	100% Reflection	(1%-100% duty cycles in each table)
Table A11	1000% Reflection	(1%-100% duty cycles in each table)
Table A12	2000% Reflection	(1%-100% duty cycles in each table)

One Collector Meter + 3 SM**

Table A13	60% Reflection	(1%-100% duty cycles in each table)
Table A14	100% Reflection	(1%-100% duty cycles in each table)
Table A15	1000% Reflection	(1%-100% duty cycles in each table)
Table A16	2000% Reflection	(1%-100% duty cycles in each table)

TABLES OF CRITICAL DISTANCES IN NURSERY (CRIB AT 11") AND KITCHEN SINK (AT 28") FROM SMART METER (A17-A48)

Table A17 Nursery Set –
Table A18 One Smart Meter – Critical Distance 11" to baby in crib
Table A19 60%, 100%, 1000%, 2000% duty cycle
Table A20 1% thru 90% duty cycle

Table A21 Nursery Set –
Table A22 Eight Smart Meters – Critical Distance 11" to baby in crib

Table A23 60%, 100%, 1000%, 2000% reflection
Table A24 1% thru 100% duty cycle

Table A25 Nursery Set –
Table A26 One Collector– Critical Distance 11" to baby in crib
Table A27 60%, 100%, 1000%, 2000% reflection
Table A28 1% thru 100% duty cycle

Table A29 Nursery Set –
Table A30 One Collector Meter + 7 SM– Critical Distance 11" to baby crib
Table A31 60%, 100%, 1000%, 2000% reflection
Table A32 1% thru 100% duty cycle

Table A33 Kitchen Set –
Table A34 One Smart Meter – Critical Distance 28" to kitchen sink person
Table A35 60%, 100%, 1000%, 2000% reflection
Table A36 1% thru 100% duty cycle

Table A37 Kitchen Set -
Table A38 Eight Smart Meters – Critical Distance 28" to kitchen sink person
Table A39 60%, 100%, 1000%, 2000% reflection
Table A40 1% thru 100% duty cycle

Table A41 Kitchen Set –
Table A42 One Collector – Critical Distance 28" to kitchen sink person
Table A43 60%, 100%, 1000%, 2000% reflection

Table A44 1% thru 100% duty cycle

Table A45 Kitchen Set –
Table A46 One Collector + 7 SM – Critical Distance 28" to kitchen
Table A47 60%, 100%, 1000%, 2000% reflection
Table A48 1% thru 100% duty cycle

Appendix B Tables 1 – 33 of Report

Data Tables, FCC Violation Tables, Health Comparisions

Appendix C

Other Sources of Information on sensitivity of the eyes and testes

In the most recent proposed revisions of RF safety standards, the IEEE SC4 committee (2001) deliberated at length over the problem of peak power limits and non-uniform RF exposure with respect to the eye and testes. The quotes below come from committee drafts submitted in response to questions from the committee moderator.

ANSI/IEEE standards adopted in 1992 (C95.1-1992) and 1999 revisions
June 2001 SC-4 Committee Minutes

These committee discussions are informative on the issue of particular organ sensitivity to RF, and unanswered questions and differences of opinion on the subject among members. They discussed vulnerable organs (eyes, testes) and metallic implants that can intensify localized RF exposures within the body and its tissues (see also discussion on metallic implants).

Question 20: Are there specific tissues or points within the body that have particularly high susceptibilities to local heating due to thermal properties in the immediate vicinity of the tissue?

Committee minutes include the following discussion on the particular sensitivities of 'ball shaped' organs including the eyes and testes.

"*Eye balls are commonly regarded as the critical organ*"

"In the range of a few GHz (gigahertz*), reasonances may occur in ball shaped eyes and testes. They are also electrically and thermally partly insulated from other tissues. Additionally these organs or some of their parts (lens) are thermally a little bit more vulnerable than other tissues."*

"(m)odeling has noted that rapid changes in dialectrics such as cerebral spinal fluid in the ventricles of the brain and surrounding brain tissue lead to high calculated SARs. Secondly, exposure of the eye to microwave

radiation can lead to increased temperature that is sufficient to damage tissues. The temperature rise will, of course, depend on the intensity of the irradiation, how well the energy is coupled into tissues, and how well the deposited energy is removed by normal mechanisms such as conduction and blood flow. Microwaves at the lower frequencies will be deposited deeper in the eye, while at higher frequencies they will be absorbed near the front surface of the eye. The eye does not efficiently remove heat deposited internally by microwave exposure. The main avenue of heat removal is conduction and blood flow through the retina and choroid. The lens has been thought to be the most vulnerable tissue since it has no blood flow. Other than conduction through the sclera and convection from the surface of the cornea, heat removal is poor compared to other body tissues. Because the lens is avasular it has been thought to be particularly sensitive to thermal effects of microwave exposure. These facts have led many investigators to postulate that the poor heat dissipation from within the eye of humans and other animals may lead to heat buildup and subsequent thermal damage."

"Eyes do not have good blood circulation and testes have lower than body temperature."

"These organs are not well-perfused, hence have been singled out for the exclusion."

"Are the above numbers valid for all parts of the body in all exposure conditions over the time averaging period of the exposure? They (the basic limits) were derived in the manner you describe in body reasonance conditions i.e. coherent exposure over the whole body length of a human. Could the limit values of SAR be increased for partial body exposure? Yes, but we do not have the data to make this decision. In the near field of a source, clearly the limit value will depend on frequency (depth of penetration), organ blood supply and tolerance of that organism to sustain a certain rate of temperature increase during the time averaging period and the environmental conditions. If you have to deal with possible pathologies of organs then matters become even more complicated, because you are dealing not only with heat physiology, but also with general pathology, whose books are much thicker than those on physiology.

Table 1
Radiofrequency Radiation Level at 6" at the Face in uW/cm2
(One Smart Meter, Four Meters)

One Meter Duty Cycle	Table A1 60% Reflection	Table A2 100% Reflection	Table A3 1000% Reflection*	Table A4 2000% Reflection*
1%	2.1 uW/cm2	3.3	99	361
10%	21	33	989	3606
20%	42	65	1979	7212
30%	63	98	2968	10818
40%	83	131	3958	14424
50%	105	164	4947	18030
60%	105	196	5936	21636
70%	147	229	6926	25241
80%	168	262	7915	28847
90%	188	294	8904	32453
100%***	209	327	9894	36059

Four** Meters Duty Cycle	Table A5 60% Reflection	Table A6 100% Reflection	Table A7 1000% Reflection*	Table A8 2000% Reflection*
	15 uW/cm^2	24	712	2596
10%	151	236	7124	25963
20%	301	471	14247	51925
30%	452	707	21371	77888
40%	603	942	28494	103850
50%	754	1177	35618	129813
60%	904	1413	42741	155775
70%	1055	1648	49865	181738
80%	1206	1884	56988	207701
90%	1356	2119	64112	233663
100%***	1507	2355	71235	259626

This table shows RF power density for face reading a meter at 6" distance.

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.
**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.
***Continuous exposure is required in calculations of time-weighted average radiofrequency exposure for uncontrolled public access by FCC OET 65 (p. 15).

Table 2
Radiofrequency Radiation Level at 6" at the Face in uW/cm2
(One Collector, 1 Collector + 3 Smart Meters)

One Collector	Table A9	Table A10	Table A11	Table A12
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	6 uW/cm2	10	296	1078
10%	63	98	958	10780
20%	125	196	5916	21561
30%	188	293	8874	32341
40%	250	391	11832	43121
50%	313	489	14789	53902
60%	376	587	17747	64682
70%	438	685	20705	75462
80%	501	782	23663	86243
90%	563	880	26621	97023
100%***	626	978	29579	107803

One** C + 3 SM	Table A13	Table A14	Table A15	Table A16
Duty Cycle	60% Reflection	100% Reflectio	1000% Reflection*	2000% Reflection*
1%	19	29	890	3242
10%	188	294	8895	32420
20%	376	588	17990	64839
30%	565	882	26686	97259
40%	753	1176	35581	129678
50%	941	1470	43700	162098
60%	1129	1764	53371	194517
70%	1317	2058	62266	226937
80%	1506	2352	71161	259356
90%	1694	2647	80056	291776
100%***	1882	2941	88952	324195

This table shows RF power density for face reading a meter at 6" distance.

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.
**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.
***Continuous exposure is required in calculations of time-weighted average radiofrequency exposure for uncontrolled public access by FCC OET 65 (p. 15).

Table 3
Radiofrequency Radiation Level at 11" in the Nursery in uW/cm2
(One Smart Meter, Four Meters)

One Meter	Table A17	Table A18	Table A19	Table A20
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	1.4	2.2	66	241
5%	7	11	331	1227
10%	14	21.9	662	2414
20%	28	43.8	1324	4828
30%	42	65.7	1986	7242
40%	56.1	87.6	2649	9655
50%	70.1	109	3312	12069
60%	84.1	131	3974	14483
70%	98.1	153	4636	16897
80%	112	175	5299	19311
90%	126	197	5961	21175
100%***	140	218	6623	24139

Four** Meters	Table A21	Table A22	Table A23	Table A24
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	4.9	7.5	227	828
5%	24	38	1137	4142
10%	48	75	2273	8284
20%	96	150	4546	16569
30%	144	225	6819	24853
40%	192	301	9092	33137
50%	240	376	11365	41421
60%	289	451	13638	49705
70%	337	526	15911	57990
80%	385	601	18184	66274
90%	433	676	20457	74558
100%***	481	751	22730	82843

This table shows RF power density for readings at 11" in the crib.

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.
**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.
***Continuous exposure is required in calculations of time-weighted average radiofrequency exposure for uncontrolled public access by FCC OET 65 (p. 15).

Table 4
Radiofrequency Radiation Level at 11" in the Nursery in uW/cm2
(One Collector/1C + 3 Smart Meters)

One Collector Duty Cycle	**Table A25** 60% Reflection	**Table A26** 100% Reflection	**Table A27** 1000% Reflection*	**Table A28** 2000% Reflection*
1%	4.0 uW/cm^2	6.2	187	680
5%	19.7	30.8	933	3399
10%	39.5	61.7	1865	6798
20%	78.9	123	3730	13596
30%	118	185	5596	20394
40%	158	247	7461	27192
50%	197	308	9326	33990
60%	237	370	11191	40788
70%	276	432	13056	47586
80%	316	493	14922	54384
90%	355	555	16787	61182
100%***	395	617	18652	67980

One Collector + 3 Meters** Duty Cycle	**Table A29** 60% Reflection	**Table A30** 100% Reflection	**Table A31** 1000% Reflection*	**Table A32** 2000% Reflection*
1%	7.4 uW/cm^2	11.5	348	1267
5%	36.8	57.5	1738	6334
10%	73.5	115	3476	12668
20%	147	230	6952	25337
30%	221	345	10428	38005
40%	294	460	13904	50674
50%	368	575	17380	63342
60%	441	689	20855	76010
70%	515	804	24331	88679
80%	588	919	27807	101347
90%	662	1034	31283	114015
100%***	735	1149	34759	126684

This table shows RF power density for readings at 11" in the crib.

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.

**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.

***Continuous exposure is required in calculations of time-weighted average radiofrequency exposure for uncontrolled public access by FCC OET 65 (p. 15).

Table 5
Radiofrequency Radiation Level at 28" in the Kitchen in uW/cm2
(One Smart Meter, Four Meters)

One Meter	Table A33	Table A34	Table A35	Table A36
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	0.2	0.3	10.2	37.3
5%	1.1	1.7	51.1	186
10%	2.2	3.4	102	373
20%	4.3	6.8	204	745
30%	6.5	10.1	307	1118
40%	8.7	13.5	409	1490
50%	10.8	16.9	511	1863
60%	13	20.3	613	2235
70%	15.1	23.7	716	2608
80%	17.3	27	818	2980
90%	19.5	30.4	920	3353
100%***	21.6	33.8	1022	3726

Four** Meters	Table A37	Table A38	Table A39	Table A40
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	0.6	0.9	26	94.6
5%	2.8	4.3	129	473
10%	5.5	8.6	260	946
20%	11	17.2	519	1892
30%	16.5	25.7	779	2837
40%	22	34.3	1038	3783
50%	27.5	42.9	1298	4729
60%	32.9	51.5	1557	5675
70%	38.4	60.1	1817	6621
80%	43.9	68.6	2076	7566
90%	49.4	77.2	2336	8512
100%***	54.9	85.8	2595	9458

This table shows RF power density for readings at 28" in the kitchen work space.

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.
**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.
***Continuous exposure is required in calculations of time-weighted average radiofrequency exposure for uncontrolled public access by FCC OET 65 (p. 15).

Table 6
Radiofrequency Radiation Level at 28" in the Kitchen in uW/cm2
(One Collector/1C + 3 Smart Meters)

One Collector Duty Cycle	**Table A41** 60% Reflection	**Table A42** 100% Reflection	**Table A43** 1000% Reflection*	**Table A44** 2000% Reflection*
1%	0.6 uW/cm^2	1	28.8	105
5%	3.1	4.8	144	525
10%	6.1	9.5	288	1049
20%	12.2	19	576	2098
30%	18.3	28.6	864	3148
40%	24.4	38.1	1152	4197
50%	30.5	47.6	1439	5246
60%	36.5	57.1	1727	6295
70%	42.6	66.6	2015	7344
80%	48.7	75.1	2303	8393
90%	54.8	85.7	2591	9243
100%***	60.9	95.2	2879	10492

One Collector + 3 Meters** Duty Cycle	**Table A45** 60% Reflection	**Table A46** 100% Reflection	**Table A47** 1000% Reflection*	**Table A48** 2000% Reflection*
1%	0.9 uW/cm^2	1.5	45	162
5%	4.7	7.4	223	811
10%	9.4	14.7	445	1622
20%	18.8	29.4	890	3245
30%	28.3	44.2	1336	4867
40%	37.7	58.9	1781	6490
50%	47.1	73.6	2226	8112
60%	56.5	88.3	2671	9734
70%	65.9	103	3116	11357
80%	75.4	118	3561	12979
90%	84.8	132	4006	14602
100%***	94.2	147	4452	16224

This table shows RF power density for readings at 28" in the kitchen work space.

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.

**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.

***Continuous exposure is required in calculations of time-weighted average radiofrequency exposure for uncontrolled public access by FCC OET 65 (p. 15).

TABLE 7

DISTANCE AT WHICH FCC TWA SAFETY LIMIT IS EXCEEDED (in inches)
(FCC limit is 655 uW/cm^2 in smart meters)

One Smart Meter	**Table A1**	**Table A2**	**Table A3**	**Table A4**
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	0.5”	0.6”	3.5”	6.68”
10%	1.6”	2.0”	11.1 ”	21.1”
20%	2.3”	2.8”	15.6”	29.9”
30%	2.8”	3.5”	19.2”	36.6”
40%	3.2”	4.0”	22.1”	42.2”
50 %	3.6”	4.5”	24.7”	47.3”
60%	3.9”	4.9”	27.1”	51.7”
70%	4.3”	5.3”	29.3”	55.9”
80%	4.6”	5.7”	31.3”	59.8”
90%	4.8”	6.0”	33.2”	63.4”
100%***	5.1”	6.4”	35.0”	66.8”

Four Meters**	**Table A5**	**Table A6**	**Table A7**	**Table A8**
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	1.44”	1.8”	9.4”	18.7”
10%	3.42”	4.8’	31.2”	59.7”
20%	5.70”	7.47”	44.2”	84.0”
30%	7.29”	9.39”	54.1”	103.4”
40%	8.6”	11.0”	62.5”	119.5”
50 %	9.73”	12.4”	70”	133.6”
60%	10.7”	13.6”	76.6”	146.3”
70%	11.7”	14.8”	82.2”	158.0”
80%	12”	15.8”	88.4”	169.0”
90%	13”	16.8”	93.8”	179.3”
100%***	14”	17.7”	98.9”	188.9”

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.
**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.
***Continuous exposure is required in calculations of time-weighted average radiofrequency exposure for uncontrolled public access by FCC OET 65 (p. 15).

TABLE 8

DISTANCE AT WHICH FCC TWA SAFETY LIMIT IS EXCEEDED FOR COLLECTOR METER (in inches)
(FCC limit is 571 uW/cm^2 or 624 uW/cm^2 for collector+ 3 SM)

FCC Limit=571 uW/cm^2 for collector meter

One Meter (1 collector)	**Table A9**	**Table A10**	**Table A11**	**Table A12**
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	0.9”	1.2”	6.5”	12.3”
10%	3.0”	3.7”	20.4”	39.0”
20%	4.2”	5.2”	28.9”	55.1”
30%	5.1”	6.4”	35.3”	67.5”
40%	5.9”	7.4”	40.8”	77.9”
50 %	6.6”	8.3”	45.6”	87.1”
60%	7.3”	9.1”	50.0”	95.4”
70%	7.9”	9.8”	54.0”	103”
80%	8.4”	10.5”	57.7”	110”
90%	8.9”	11.1”	61.2”	116”
100%***	9.4”	11.7”	64.5”	123”

FCC Limit = 624 uW/cm^2 for collector meter plus 3 smart meters

One Collector + 3 Smart Meters**	**Table A13**	**Table A14**	**Table A15**	**Table A16**
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
1%	1.6”	2.1”	10.9”	21.3
10%	4.2”	5.6”	35.6”	68.1”
20%	6.7”	8.7”	50.4”	96.3”
30%	8.5”	10.8”	61.7”	118”
40%	9.9”	12.6”	71.3”	136”
50 %	11.2”	14.2”	79.7”	152”
60%	12.4”	15.6”	87.4”	167”
70%	13.4”	16.9”	94.4”	180”
80%	14.4”	18.1”	101”	193”
90%	15.3”	19.2”	107”	204”
100%***	16.1”	20.3”	113”	215”

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.
**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.

***Continuous exposure is required in calculations of time-weighted average radiofrequency exposure for uncontrolled public access by FCC OET 65 (p. 15)

TABLE 9

PEAK POWER LIMIT
(Distance at which 4000 uW/cm2*** FCC peak limit is exceeded in inches)

	60% Reflection	100% Reflection	1000% Reflection*	2000% Reflection*
One Smart Meter	2”	2.6”	14.2”	27”
Four Smart Meters	4.1”	5.2”	28.3”	54”
One Collector Meter	4”	4.5”	24”	46.7”
One Collector + 3 SM	5.0”	6.3”	34.6”	66.1”

*Note: 1000-2000% reflection based on Vermeeren et al, 2010; Christ et al, 2010; Hondou, 2002.

**More than 4 meters placed together do not appreciably increase the exposure to one reference point, such as a crib or bed. However, multiple meters can increase the square footage of space similarly affected.

*** FCC OET 65 and ANSI/IEEE C95.1-1992, 1999 specify that 4000 uW/cm2 public safety limit be applied for frequencies between 300 MHz and 6 GHz (6000 MHz) for peak power exposure.

Table 10
Potential FCC Violations of TWA 655 uW/cm2 - Face at 6"
(One Smart Meter, Four Meters)

One Meter	Table A1	Table A2	Table A3	Table A4
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	2.1 uW/cm2	3.3	99	361
10%	21	33	989	3606
20%	42	65	1979	7212
30%	63	98	2968	10818
40%	83	131	3958	14424
50%	105	164	4947	18030
60%	105	196	5936	21636
70%	147	229	6926	25241
80%	168	262	7915	28847
90%	188	294	8904	32453
100%	209	327	9894	36059

Four Meters	Table A5	Table A6	Table A7	Table A8
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
	15 uW/cm^2	24	712	2596
10%	151	236	7124	25963
20%	301	471	14247	51925
30%	452	707	21371	77888
40%	603	942	28494	103850
50%	754	1177	35618	129813
60%	904	1413	42741	155775
70%	1055	1648	49865	181738
80%	1206	1884	56988	207701
90%	1356	2119	64112	233663
100%	1507	2355	71235	259626

This table shows RF power density for face reading a meter at 6" distance.

Exceeds 655 uW/cm2 at 6" at the face

Table 11
Potential FCC Violations of TWA 571/624 uW/cm2- Face at 6"
(One Collector, 1 Collector + 3 Smart Meters)

One Collector	Table A9	Table A10	Table A11	Table A12
Duty Cycle	60%	100%	1000%	2000%
571 limit	Reflection	Reflection	Reflection	Reflection
1%	6 uW/cm2	9	279	1015
10%	59	92	2786	10152
20%	118	184	5571	20305
30%	177	276	8357	30457
40%	236	368	11142	40610
50%	295	460	13928	50762
60%	354	553	16713	60914
70%	413	645	19449	71067
80%	471	737	22285	81219
90%	530	829	25070	91372
100%	589	921	27856	101524

One C + 3 SM	Table A13	Table A14	Table A15	Table A16
Duty Cycle	60%	100%	1000%	2000%
	Reflection	Reflectio	Reflection	Reflection
624 limit				
1%	18	29	874	3185
10%	185	289	8740	31854
20%	370	578	17480	63709
30%	555	867	26220	95563
40%	740	1156	34960	127418
50%	925	1445	43700	159272
60%	1109	1734	52441	191126
70%	1294	2023	61181	222981
80%	1479	2311	69921	254835
90%	1664	2600	78661	286690
100%	1849	2889	87401	318544

This table shows RF power density for face reading a meter at 6" distance.

Exceeds 571 or 624 uW/cm2 at 6" at the face.

Table 12
Potential FCC Violations of 655 uW/cm2 TWA Safety Limit
Nursery at 11"
(One Smart Meter, Four Meters)

One Meter Duty Cycle	Table A17 60% Reflection	Table A18 100% Reflection	Table A19 1000% Reflection	Table A20 2000% Reflection
1%	1.4	2.2	66.2	241
5%	7	11	331	1227
10%	14	21.9	662	2414
20%	28	43.8	1324	4828
30%	42	65.7	1986	7242
40%	56.1	87.6	2649	9655
50%	70.1	109	3312	12069
60%	84.1	131	3974	14483
70%	98.1	153	4636	16897
80%	112	175	5299	19311
90%	126	197	5961	21175
100%	140	218	6623	24139

Four Meters Duty Cycle	Table A21 60% Reflection	Table A22 100% Reflection	Table A23 1000% Reflection	Tab;e A24 2000% Reflection
1%	4.9	7.5	227	828
5%	24	37.6	1137	4142
10%	48.1	75.1	2273	8284
20%	96.2	150	4546	16569
30%	144	225	6819	24853
40%	192	301	9092	33137
50%	240	376	11365	41421
60%	289	451	13638	49705
70%	337	526	15911	57990
80%	385	601	18184	66274
90%	433	676	20457	74558
100%	481	751	22730	82843

This table shows RF power density FCC violations at 11".

Exceeds 655 uW/cm2 FCC TWA Safety Limit

Table 13
Potential FCC Violations of the 571/624 uW/cm2
TWA Safety Limit at 11" in the Nursery
(One Collector/1C + 3 Smart Meters)

One Collector Duty Cycle 571 limit	**Table A25** 60% Reflection	**TableA26** 100% Reflection	**Table A27** 1000% Reflection	**Table A28** 2000% Reflection
1%	4.0 uW/cm^2	6.2	187	680
5%	19.7	30.8	933	3399
10%	39.5	61.7	1865	6798
20%	78.9	123	3730	13596
30%	118	185	5596	20394
40%	158	247	7461	27192
50%	197	308	9326	33990
60%	237	370	11191	40788
70%	276	432	13056	47586
80%	316	493	14922	54384
90%	355	555	16787	61182
100%	395	617	18652	67980

One Collector + 3 Meters** Duty Cycle 624 limit	**Table A29** 60% Reflection	**Table A30** 100% Reflection	**Table A31** 1000% Reflection	**Table A32** 2000% Reflection
1%	7.4 uW/cm^2	11.5	348	1267
5%	36.8	57.5	1738	6334
10%	73.5	115	3476	12668
20%	147	230	6952	25337
30%	221	345	10428	38005
40%	294	460	13904	50674
50%	368	575	17380	63342
60%	441	689	20855	76010
70%	515	804	24331	88679
80%	588	919	27807	101347
90%	662	1034	31283	114015
100%	735	1149	34759	126684

This table shows RF power density FCC violations at 11"

Exceeds either 571 or 624 uW/cm2 FCC Limit

Table 14
Potential FCC Violations of the 655 uW/cm2 Safety Limit at 28" in the Kitchen
(One Smart Meter, Four Meters)

One Meter Duty Cycle	Table A33 60% Reflection	Table A34 100% Reflection	TableA35 1000% Reflection	Table A36 2000% Reflection
1%	0.2	0.3	10.2	37.3
5%	1.1	1.7	51.1	186
10%	2.2	3.4	102	373
20%	4.3	6.8	204	745
30%	6.5	10.1	307	1118
40%	8.7	13.5	409	1490
50%	10.8	16.9	511	1863
60%	13	20.3	613	2235
70%	15.1	23.7	716	2608
80%	17.3	27	818	2980
90%	19.5	30.4	920	3353
100%	21.6	33.8	1022	3726

Four Meters Duty Cycle	Table A37 60% Reflection	Table A38 100% Reflection	Table A39 1000% Reflection	Table A40 2000% Reflection
1%	0.6	0.9	26	94.6
5%	2.8	4.3	129	473
10%	5.5	8.6	260	946
20%	11	17.2	519	1892
30%	16.5	25.7	779	2837
40%	22	34.3	1038	3783
50%	27.5	42.9	1298	4729
60%	32.9	51.5	1557	5675
70%	38.4	60.1	1817	6621
80%	43.9	68.6	2076	7566
90%	49.4	77.2	2336	8512
100%	54.9	85.8	2595	9458

This table shows RF power density readings at 28" in the kitchen work space.

Exceeds 655 uW/cm2 FCC Limit

Table 15
Potential FCC Violations of 571/624 uW/cm2 FCC Limit at 28" in the Kitchen
(One Collector/1C + 3 Smart Meters)

One Collector Duty Cycle 571 limit	Table A41 60% Reflection	Table A42 100% Reflection	Table A43 1000% Reflection	Table A44 2000% Reflection
1%	0.6 uW/cm^2	1	28.8	105
5%	3.1	4.8	144	525
10%	6.1	9.5	288	1049
20%	12.2	19	576	2098
30%	18.3	28.6	864	3148
40%	24.4	38.1	1152	4197
50%	30.5	47.6	1439	5246
60%	36.5	57.1	1727	6295
70%	42.6	66.6	2015	7344
80%	48.7	75.1	2303	8393
90%	54.8	85.7	2591	9243
100%	60.9	95.2	2879	10492

One Collector + 3 Meters** Duty Cycle 624 limit	Table A45 60% Reflection	Table A46 100% Reflection	Table A47 1000% Reflection	Table A48 2000% Reflection
1%	0.9 uW/cm^2	1.5	45	162
5%	4.7	7.4	223	811
10%	9.4	14.7	445	1622
20%	18.8	29.4	890	3245
30%	28.3	44.2	1336	4867
40%	37.7	58.9	1781	6490
50%	47.1	73.6	2226	8112
60%	56.5	88.3	2671	9734
70%	65.9	103	3116	11357
80%	75.4	118	3561	12979
90%	84.8	132	4006	14602
100%	94.2	147	4452	16224

This table shows RF power density readings at 28" in the kitchen work space.

Exceeds 571/624 uW/cm2 FCC Limit

Table 16
Potential FCC Violations of Peak Power Limit 4000 uW/cm2 at 3"
(One Smart Meter, Four Meters)

One Meter	Table A1	Table A2	Table A3	Table A4
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	19	29	890	3245
10%	188	294	8904	32453
20%	377	589	17809	64906
30%	565	883	26713	97360
40%	754	1177	35618	129813
50%	942	1472	44522	162266
60%	1130	1766	53426	194719
70%	1319	2061	62331	227172
80%	1507	2355	71235	259626
90%	1696	2649	80140	292079
100%	1884	2944	89044	324532

Four Meters	Table A5	Table A6	Table A7	Table A8
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	75	118	3562	12981
10%	754	1177	35618	129813
20%	1507	2355	71235	259626
30%	2261	3532	106853	389438
40%	3014	4710	142470	519251
50%	3768	5887	178088	649064
60%	4521	7065	213705	778877
70%	5275	8242	249323	908690
80%	6029	9420	284941	1038503
90%	6782	10597	320558	1168315
100%	7536	11774	356176	1298128

This table shows RF power density at 3" distance at surface of meter

Exceeds 4000 uW/cm2 at 3" from antenna radiation center at face of meter.

Table 17
Potential FCC Violations of Peak Power Limit 4000 uW/cm2 at 3"
(One Collector, 1 Collector + 3 Smart Meters)

One Collector	Table A9	Table A10	Table A11	Table A12
Duty Cycle	60%	100%	1000%	2000%
571 limit	Reflection	Reflection	Reflection	Reflection
1%	53	83	2507	9137
10%	530	829	25070	91372
20%	1061	1658	50140	182743
30%	1591	2486	75211	274115
40%	2122	3315	100281	365486
50%	2652	4144	125351	456858
60%	3182	4973	150421	548229
70%	3713	5801	175491	639601
80%	4243	6630	200562	730972
90%	4774	7459	225632	822344
100%	5304	8288	250702	913715

One C + 3 SM	Table A13	Table A14	Table A15	Table A16
Duty Cycle	60%	100%	1000%	2000%
	Reflection	Reflectio	Reflection	Reflection
624 limit				
1%	92	144	4370	15927
10%	925	1445	43700	159272
20%	1849	2889	87401	318544
30%	2774	4334	131101	477816
40%	3698	5779	174802	637088
50%	4623	7223	218502	796360
60%	5547	8668	262203	955632
70%	6472	10113	305903	1114904
80%	7397	11557	349604	1274176
90%	8321	13002	393304	1433448
100%	9246	14446	437005	1592720

This table shows RF power density at 3" distance at surface of meter.

Exceeds 4000 uW/cm2 at 3" from antenna radiation center at face of meter.

Table 18
Radiofrequency Radiation Levels Associated with Inhibition of DNA Repair in Human Stem Cells at 11" in the Nursery
(One Smart Meter, Four Meters)

One Meter	Table A17	Table A18	Table A19	Table A20
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	1.4	2.2	66.2	241
5%	7	11	331	1227
10%	14	21.9	662	2414
20%	28	43.8	1324	4828
30%	42	65.7	1986	7242
40%	56.1	87.6	2649	9655
50%	70.1	109	3312	12069
60%	84.1	131	3974	14483
70%	98.1	153	4636	16897
80%	112	175	5299	19311
90%	126	197	5961	21175
100%	140	218	6623	24139

Four Meters	Table A21	Table A22	Table A23	Table A24
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	4.9	7.5	227	828
5%	24	37.6	1137	4142
10%	48.1	75.1	2273	8284
20%	96.2	150	4546	16569
30%	144	225	6819	24853
40%	192	301	9092	33137
50%	240	376	11365	41421
60%	289	451	13638	49705
70%	337	526	15911	57990
80%	385	601	18184	66274
90%	433	676	20457	74558
100%	481	751	22730	82843

Exceeds 0.037 W/Kg or ~92 uW/cm2

Table 19
Radiofrequency Radiation Level Associated with Inhibition of DNA Repair in Human Stem Cells at 11" in the Nursery
(One Collector/1C + 3 Smart Meters)

One Collector	Table A25	Table A26	Table A27	Table A28
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	4.0 uW/cm^2	6.2	187	680
5%	19.7	30.8	933	3399
10%	39.5	61.7	1865	6798
20%	78.9	123	3730	13596
30%	118	185	5596	20394
40%	158	247	7461	27192
50%	197	308	9326	33990
60%	237	370	11191	40788
70%	276	432	13056	47586
80%	316	493	14922	54384
90%	355	555	16787	61182
100%	395	617	18652	67980

One C+ 3 SM	Table A29	Table A30	Table A31	Table A32
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	7.4 uW/cm^2	11.5	348	1267
5%	36.8	57.5	1738	6334
10%	73.5	115	3476	12668
20%	147	230	6952	25337
30%	221	345	10428	38005
40%	294	460	13904	50674
50%	368	575	17380	63342
60%	441	689	20855	76010
70%	515	804	24331	88679
80%	588	919	27807	101347
90%	662	1034	31283	114015
100%	735	1149	34759	126684

Exceeds 0.037 W/Kg or ~92 uW/cm2

Table 20
Radiofrequency Radiation Level Associated with Pathological Leakage of the Blood-brain Barrier at 0.4-8 uW/cm2 at 11" in the Nursery
(One Smart Meter, Four Meters)

One Meter	Table A17	Table A18	Table A19	Table A20
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	1.4	2.2	66.2	241
5%	7	11	331	1227
10%	14	21.9	662	2414
20%	28	43.8	1324	4828
30%	42	65.7	1986	7242
40%	56.1	87.6	2649	9655
50%	70.1	109	3312	12069
60%	84.1	131	3974	14483
70%	98.1	153	4636	16897
80%	112	175	5299	19311
90%	126	197	5961	21175
100%	140	218	6623	24139
Four Meters	**Table A21**	**Table A22**	**Table A23**	**Table A24**
	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
	4.9	7.5	227	828
	24	37.6	1137	4142
	48.1	75.1	2273	8284
	96.2	150	4546	16569
	144	225	6819	24853
	192	301	9092	33137
	240	376	11365	41421
	289	451	13638	49705
	337	526	15911	57990
	385	601	18184	66274
	433	676	20457	74558
	481	751	22730	82843

Exceeds between 0.4-8 Exceeds 8 uW/cm2

Table 21
Radiofrequency Radiation Level Associated with Pathological Leakage of the Blood-brain Barrier at 0.4 - 8 uW/cm2
(One Collector/1C + 3 Smart Meters)

One Collector Duty Cycle	Table 25 60% Reflection	Table A26 100% Reflection	Table A27 1000% Reflection	Table A28 2000% Reflection
1%	4.0 uW/cm^2	6.2	187	680
5%	19.7	30.8	933	3399
10%	39.5	61.7	1865	6798
20%	78.9	123	3730	13596
30%	118	185	5596	20394
40%	158	247	7461	27192
50%	197	308	9326	33990
60%	237	370	11191	40788
70%	276	432	13056	47586
80%	316	493	14922	54384
90%	355	555	16787	61182
100%	395	617	18652	67980

One Collector + 3 Meters** Duty Cycle	Table A29 60% Reflection	Table A30 100% Reflection	Table A31 1000% Reflection	Table A32 2000% Reflection
1%	7.4 uW/cm^2	11.5	348	1267
5%	36.8	57.5	1738	6334
10%	73.5	115	3476	12668
20%	147	230	6952	25337
30%	221	345	10428	38005
40%	294	460	13904	50674
50%	368	575	17380	63342
60%	441	689	20855	76010
70%	515	804	24331	88679
80%	588	919	27807	101347
90%	662	1034	31283	114015
100%	735	1149	34759	126684

Exceeds between 0.4-8 Exceeds 8 uW/cm2

Table 22 Radiofrequency Radiation Levels Associated with Adverse Neurological Symptoms, Cardiac Problems and Increased Cancer Risk (chronic exposure above 0.05- 0.1 uW/cm2) Nursery at 11" One Meter and Four Meters

As reported in Khurana et al, 2010 in the International Journal of Environmental Occupational Health 16:263-267; Kundi and Hutter, 2009, Pathophysiology 16: 123-135 and the BioInitiative Report, 2007, Chapters 1 and 17.

One Meter Duty Cycle	Table A17 60% Reflection	Table A18 100% Reflection	Table A19 1000% Reflection	Table A20 2000% Reflection
1%	1.4	2.2	66.2	241
5%	7	11	331	1227
10%	14	21.9	662	2414
20%	28	43.8	1324	4828
30%	42	65.7	1986	7242
40%	56.1	87.6	2649	9655
50%	70.1	109	3312	12069
60%	84.1	131	3974	14483
70%	98.1	153	4636	16897
80%	112	175	5299	19311
90%	126	197	5961	21175
100%	140	218	6623	24139

Four Meters Duty Cycle	Table A21 60% Reflection	Table A22 100% Reflection	Table A23 1000% Reflection	Table A24 2000% Reflection
1%	4.9	7.5	227	828
5%	24	37.6	1137	4142
10%	48.1	75.1	2273	8284
20%	96.2	150	4546	16569
30%	144	225	6819	24853
40%	192	301	9092	33137
50%	240	376	11365	41421
60%	289	451	13638	49705
70%	337	526	15911	57990
80%	385	601	18184	66274
90%	433	676	20457	74558
100%	481	751	22730	82843

Exceeds 0.1 uW/cm2

All exposure levels exceed those identified in Khurana et al, 2010; Kundi and Hutter, 2009 and the BioInitiative Report (2007) to be associated with increased risk of adverse neurological symptoms (headache, sleep disruption, restlessness, tremor, cognitive impairment tinnitus), increased cancer risk or heart problems, arrythmias, altered heart rhythm, palpitations. These effects are reported in studies of populations living at distances < 500 meters from base stations, and at levels at or over 0.05-0.1 uW/cm2, but not at RF levels below chronic RF exposure levels of 0.05 - 0.1 uW/cm2 in healthy populations.

Table 23 Radiofrequency Radiation Levels Associated with Adverse Neurological Symptoms, Cardiac Problems and Increased Cancer Risk (chronic exposure above 0.05- 0.1 uW/cm2) Nursery at 11" One Meter and Four Meters

As reported in Khurana et al, 2010 in the International Journal of Environmental Occupational Health 16:263-267; Kundi and Hutter, 2009, Pathophysiology 16: 123-135 and the BioInitiative Report, 2007, Chapters 1 and 17.

One Collector	Table A33	Table A34	Table A35	Table A36
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	4	6.2	187	680
5%	20	30.8	933	3399
10%	40	61.7	1865	6798
20%	79	123	3730	13596
30%	118	185	5596	20394
40%	158	247	7461	27192
50%	197	308	9326	33990
60%	237	370	11191	40788
70%	276	432	13056	47586
80%	316	493	14922	54384
90%	355	555	16787	61182
100%	395	617	18652	67980
1C + 3 SM	**Table A37**	**Table A38**	**Table A39**	**Table A40**
Duty Cycle	60% Reflection	100% Reflection	100% Reflection	2000% Reflection
1%	7.4	11.5	348	1267
5%	36.8	57.5	1738	6334
10%	73.5	115	3476	12668
20%	147	230	6952	25337
30%	221	345	10428	38005
40%	294	460	13904	50674
50%	368	575	17380	63342
60%	441	689	20855	76010
70%	515	804	24331	88679
80%	588	919	27807	101347
90%	662	1034	31283	114015
100%	735	1149	34759	126684

Exceeds 0.1 uW/cm2

All exposure levels exceed those identified in Khurana et al, 2010; Kundi and Hutter, 2009 and the BioInitiative Report (2007) to be associated with increased risk of adverse neurological symptoms (headache, sleep disruption, restlessness, tremor, cognitive impairment tinnitus), increased cancer risk or heart problems, arrythmias, altered heart rhythm, palpitations. These effects are reported in studies of populations living at distances < 500 meters from base stations, and at levels at or over 0.05-0.1 uW/cm2, but not at RF levels below chronic RF exposure levels of 0.05 - 0.1 uW/cm2 in healthy populations.

Table 24
Radiofrequency Radiation Levels Associated with Inhibition of DNA Repair in Human Stem Cells at 28" Kitchen Example
(One Smart Meter, Four Meters)

One Meter	Table A33	Table A34	Table A35	Table A36
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.2	0.3	10.2	37.3
5%	1.1	1.7	51.1	186
10%	2.2	3.4	102	373
20%	4.3	6.8	204	745
30%	6.5	10.1	307	1118
40%	8.7	13.5	409	1490
50%	10.8	16.9	511	1863
60%	13	20.3	613	2235
70%	15.1	23.7	716	2608
80%	17.3	27	818	2980
90%	19.5	30.4	920	3353
100%	21.6	33.8	1022	3726

Four Meters	Table A37	Table A38	Table A39	Table A40
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.6	0.9	26	94.6
5%	2.8	4.3	129	473
10%	5.5	8.6	260	946
20%	11	17.2	519	1892
30%	16.5	25.7	779	2837
40%	22	34.3	1038	3783
50%	27.5	42.9	1298	4729
60%	32.9	51.5	1557	5675
70%	38.4	60.1	1817	6621
80%	43.9	68.6	2076	7566
90%	49.4	77.2	2336	8512
100%	54.9	85.8	2595	9458

Exceeds 0.037 W/Kg or ~92 uW/cm2

Table 25
Radiofrequency Radiation Levels Associated with Inhibition of DNA Repair in Human Stem Cells at 28" in Kitchen
(One Collector/1C + 3 Smart Meters)

One Collector	Table A41	Table A42	Table A43	Table A44
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.6 uW/cm^2	1	28.8	105
5%	3.1	4.8	144	525
10%	6.1	9.5	288	1049
20%	12.2	19	576	2098
30%	18.3	28.6	864	3148
40%	24.4	38.1	1152	4197
50%	30.5	47.6	1439	5246
60%	36.5	57.1	1727	6295
70%	42.6	66.6	2015	7344
80%	48.7	75.1	2303	8393
90%	54.8	85.7	2591	9243
100%	60.9	95.2	2879	10492

One Collector + 3 SM	Table A45	Table A46	Table A47	Table A48
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.9 uW/cm^2	1.5	45	162
5%	4.7	7.4	223	811
10%	9.4	14.7	445	1622
20%	18.8	29.4	890	3245
30%	28.3	44.2	1336	4867
40%	37.7	58.9	1781	6490
50%	47.1	73.6	2226	8112
60%	56.5	88.3	2671	9734
70%	65.9	103	3116	11357
80%	75.4	118	3561	12979
90%	84.8	132	4006	14602
100%	94.2	147	4452	16224

Exceeds 0.037 W/Kg or ~92 uW/cm2

Table 26
Radiofrequency Radiation Levels Associated with Pathological Leakage of the Blood-brain Barrier at 0.4 - 8 uW/cm2 at 28" in Kitchen
(One Smart Meter, Four Meters)

One Meter	Table A33	Table A34	Table A35	Table A36
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.2	0.3	10.2	37.3
5%	1.1	1.7	51.1	186
10%	2.2	3.4	102	373
20%	4.3	6.8	204	745
30%	6.5	10.1	307	1118
40%	8.7	13.5	409	1490
50%	10.8	16.9	511	1863
60%	13	20.3	613	2235
70%	15.1	23.7	716	2608
80%	17.3	27	818	2980
90%	19.5	30.4	920	3353
100%	21.6	33.8	1022	3726

Four Meters	Table A37	Table A38	Table A39	Table A40
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.6	0.9	26	94.6
5%	2.8	4.3	129	473
10%	5.5	8.6	260	946
20%	11	17.2	519	1892
30%	16.5	25.7	779	2837
40%	22	34.3	1038	3783
50%	27.5	42.9	1298	4729
60%	32.9	51.5	1557	5675
70%	38.4	60.1	1817	6621
80%	43.9	68.6	2076	7566
90%	49.4	77.2	2336	8512
100%	54.9	85.8	2595	9458

Exceeds 8 uW/cm2 | Exceeds between 0.4 and 8 uW/cm2

Table 27
Radiofrequency Radiation Levels Associated with Pathological Leakage of the Blood-brain Barrier at 0.4 - 8 uW/cm2 at 28" in Kitchen
One Collector/1C + 3 Smart Meters

One Collector	Table A41	Table A42	Table A43	Table A44
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.6 uW/cm^2	1	28.8	105
5%	3.1	4.8	144	525
10%	6.1	9.5	288	1049
20%	12.2	19	576	2098
30%	18.3	28.6	864	3148
40%	24.4	38.1	1152	4197
50%	30.5	47.6	1439	5246
60%	36.5	57.1	1727	6295
70%	42.6	66.6	2015	7344
80%	48.7	75.1	2303	8393
90%	54.8	85.7	2591	9243
100%	60.9	95.2	2879	10492
One Collector + 3 SM	**Table A45**	**Table A46**	**Table A47**	**Table A48**
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.9 uW/cm^2	1.5	45	162
5%	4.7	7.4	223	811
10%	9.4	14.7	445	1622
20%	18.8	29.4	890	3245
30%	28.3	44.2	1336	4867
40%	37.7	58.9	1781	6490
50%	47.1	73.6	2226	8112
60%	56.5	88.3	2671	9734
70%	65.9	103	3116	11357
80%	75.4	118	3561	12979
90%	84.8	132	4006	14602
100%	94.2	147	4452	16224

Exceeds 8 uW/cm2 | Exceeds between 0.4 and 8 uW/cm2

Table 28 Radiofrequency Radiation Levels Associated with Adverse Neurological Symptoms, Cardiac Problems and Increased Cancer Risk (chronic exposure above 0.05- 0.1 uW/cm2) Kitchen at 28" One Meter and Four Meters

As reported in Khurana et al, 2010 in the International Journal of Environmental Occupational Health 16:263-267; Kundi and Hutter, 2009, Pathophysiology 16: 123-135 and the BioInitiative Report, 2007, Chapters 1 and 17.

One Meter	Table A33	Table A34	Table A35	Table A36
Duty Cycle	60% Reflectio	100% Reflection	1000% Reflection	2000% Reflection
1%	0.2	0.3	10.2	37.3
5%	1.1	1.7	51.1	186
10%	2.2	3.4	102	373
20%	4.3	6.8	204	745
30%	6.5	10.1	307	1118
40%	8.7	13.5	409	1490
50%	10.8	16.9	511	1863
60%	13	20.3	613	2235
70%	15.1	23.7	716	2608
80%	17.3	27	818	2980
90%	19.5	30.4	920	3353
100%	21.6	33.8	1022	3726

Four Meters	Table A37	Table A38	Table A39	Table A40
Duty Cycle	60% Reflection	100% Reflection	100% Reflection	2000% Reflection
1%	0.6	0.9	26	94.6
5%	2.8	4.3	129	473
10%	5.5	8.6	260	946
20%	11	17.2	519	1892
30%	16.5	25.7	779	2837
40%	22	34.3	1038	3783
50%	27.5	42.9	1298	4729
60%	32.9	51.5	1557	5675
70%	38.4	60.1	1817	6621
80%	43.9	68.6	2076	7566
90%	49.4	77.2	2336	8512
100%	54.9	85.8	2595	9458

Exceeds 0.1 uW/cm2

All exposure levels exceed those identified in Khurana et al, 2010; Kundi and Hutter, 2009 and the BioInitiative Report (2007) to be associated with increased risk of adverse neurological symptoms (headache, sleep disruption, restlessness, tremor, cognitive impairment tinnitus), increased cancer risk or heart problems, arrythmias, altered heart rhythm, palpitations. These effects are reported in studies of populations living at distances < 500 meters from base stations, and at levels at or over 0.05-0.1 uW/cm2, but not at RF levels below chronic RF exposure levels of 0.05 - 0.1 uW/cm2 in healthy populations.

Table 29 Radiofrequency Radiation Levels Associated with Adverse Neurological Symptoms, Cardiac Problems and Increased Cancer Risk (chronic exposure above 0.05- 0.1 uW/cm2) Kitchen at 28" One Collector, 1C + 3 Smart Meters

As reported in Khurana et al, 2010 in the International Journal of Environmental Occupational Health 16:263-267; Kundi and Hutter, 2009, Pathophysiology 16: 123-135 and the BioInitiative Report, 2007, Chapters 1 and 17.

One Collector	Table A41	Table A42	Table A43	Table A44
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.6	1	28.8	105
5%	3.1	4.8	144	525
10%	6.1	9.5	288	1049
20%	12.2	19	576	2098
30%	18.3	28.6	864	3148
40%	24.4	38.1	1152	4197
50%	30.5	47.6	1439	5246
60%	36.5	57.1	1727	6295
70%	42.6	66.6	2015	7344
80%	48.7	75.1	2303	8393
90%	54.8	85.7	2591	9243
100%	60.9	95.2	2879	10492

1C, 1C+3 SM	Table A45	Table A46	Table A47	Table A48
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	0.9	1.5	45	162
5%	4.7	7.4	223	811
10%	9.4	14.7	445	1622
20%	18.8	29.4	890	3245
30%	28.3	44.2	1336	4867
40%	37.7	58.9	1781	6490
50%	47.1	73.6	2226	8112
60%	56.5	88.3	2671	9734
70%	65.9	103	3116	11357
80%	75.4	118	3561	12979
90%	84.8	132	4006	14602
100%	94.2	147	4452	16224

Exceeds 0.1 uW/cm2

All exposure levels exceed those identified in Khurana et al, 2010; Kundi and Hutter, 2009 and the BioInitiative Report (2007) to be associated with increased risk of adverse neurological symptoms (headache, sleep disruption, restlessness, tremor, cognitive impairment tinnitus), increased cancer risk or heart problems, arrythmias, altered heart rhythm, palpitations. These effects are reported in studies of populations living at distances < 500 meters from base stations, and at levels at or over 0.05-0.1 uW/cm2, but not at RF levels below chronic RF exposure levels of 0.05 - 0.1 uW/cm2 in healthy populations.

Table 30
Exceeds Medtronics Advisory Limit at 11"
(One Smart Meter, Four Meters)

One Meter	Table A17	Table A18	Table A19	Table A20
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	1.4	2.2	66.2	241
5%	7	11	331	1227
10%	14	21.9	662	2414
20%	28	43.8	1324	4828
30%	42	65.7	1986	7242
40%	56.1	87.6	2649	9655
50%	70.1	109	3312	12069
60%	84.1	131	3974	14483
70%	98.1	153	4636	16897
80%	112	175	5299	19311
90%	126	197	5961	21175
100%	140	218	6623	24139

Four Meters	Table A21	Table A22	Table A23	Tab;e A24
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	4.9	7.5	227	828
5%	24	37.6	1137	4142
10%	48.1	75.1	2273	8284
20%	96.2	150	4546	16569
30%	144	225	6819	24853
40%	192	301	9092	33137
50%	240	376	11365	41421
60%	289	451	13638	49705
70%	337	526	15911	57990
80%	385	601	18184	66274
90%	433	676	20457	74558
100%	481	751	22730	82843

Exceeds Medtronics SAR Advisory Limit

Table 31
Exceeds Medtronics Advisory Limit at 11"
(One Collector, 1C + 3 SM)

One Collector	Table A25	TableA26	Table A27	Table A28
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	4.0 uW/cm^2	6.2	187	680
5%	19.7	30.8	933	3399
10%	39.5	61.7	1865	6798
20%	78.9	123	3730	13596
30%	118	185	5596	20394
40%	158	247	7461	27192
50%	197	308	9326	33990
60%	237	370	11191	40788
70%	276	432	13056	47586
80%	316	493	14922	54384
90%	355	555	16787	61182
100%	395	617	18652	67980

One Collector + 3 Meters**	Table A29	Table A30	Table A31	Table A32
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	7.4 uW/cm^2	11.5	348	1267
5%	36.8	57.5	1738	6334
10%	73.5	115	3476	12668
20%	147	230	6952	25337
30%	221	345	10428	38005
40%	294	460	13904	50674
50%	368	575	17380	63342
60%	441	689	20855	76010
70%	515	804	24331	88679
80%	588	919	27807	101347
90%	662	1034	31283	114015
100%	735	1149	34759	126684

Exceeds Medtronics SAR Advisory Limit

Table 32
Distance to the BioInitiative Report Recommendation 0f 0.1 uW/cm2 (in feet)

(One Smart Meter, Four Meters)

One Meter	Table A1	Table A2	Table A3	Table A4
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	3.4’	28.0’	23.6’	45’
10%	10.9’	13.6’	74.5’	143'
20%	15.3’	19.2’	105’	201'
30%	18.8’	23.5’	129’	247'
40%	21.7’	27.1’	149’	285'
50%	24.3’	30.4’	167’	318'
60%	26.6’	33.2’	348’	348
70%	28.7’	35.8’	197’	376'
80%	30.7’	38.3’	211’	403'
90%	32.6’	40.6’	224’	428'
100%	34.3’	42.8’	256’	450'

Four Meters	Table A5	Table A6	Table A7	Table A8
Duty Cycle	60% Reflectio	100% Reflection	1000% Reflection	2000% Reflection
1%	9.7	12'	67'	128'
10%	30.7’	38.4’	211’	402'
20%	43.5’	54.2’	298’	570'
30%	53.2’	66.3’	365’	698'
40%	61.3’	76.8’	422’	805'
50%	68.5’	85.8’	471’	900'
60%	75.0’	94.0’	517’	985'
70%	81’	102’	558’	1065'
80%	87’	109’	598’	1140'
90%	92’	115’	632’	1210'
100%	97’	122’	667’	1275'

Exceeds the BioInitiative Recommendation of 0.1 uW/cm2 at this distance (in feet)

Table 33
Distance to the BioInitiative Report Recommendation 0f 0.1 uW/cm2 (in feet)
(One Collector, 1C + 3 Smart Meters)

One Collector	Table A9	Table A10	Table A11	Table A12
Duty Cycle	60% Reflection	100% Reflection	1000% Reflection	2000% Reflection
1%	5.9’	7.25’	41'	78’
10%	18.6’	23.0’	129’	246’
20%	26.5’	32.5	182’	348’
30%	32.5’	39.8’	223’	426’
40%	37.5’	46.0’	258’	493’
50%	42.0’	51.3’	288’	550’
60%	46.0’	56.3’	603’	603'
70%	49.6’	60.8’	342’	650'
80%	53.0’	64.8’	365’	695'
90%	56.3’	68.8’	387’	739'
100%	59.2’	74.0’	407’	778'

1C + 3 Smart Meters	Table A13	Table A14	Table A15	Table A16
Duty Cycle	60% Reflectio	100% Reflection	1000% Reflection	2000% Reflection
1%	10.9’	13.6’	74.7’	142’
10%	34.3’	42.8’	236’	450’
20%	48.5’	60.5’	333’	673'
30%	58.5	74.3’	408’	780’
40%	68.5	85.6’	471’	900'
50%	76.5’	96.0’	526’	1005’
60%	84.0’	105’	577'	1100'
70%	90.7’	114’	625’	1190'
80%	97.0’	121’	666'	1160'
90%	103’	129’	707’	1275’
100%	108’	136’	745'	1420’

Exceeds the BioInitiative Recommendation of 0.1 uW/cm2 at this distance (in feet)

From: **Brian Stein** brian.stein61@hotmail.com
Subject: Fw: Question about studies with negative results
Date: June 8, 2020 at 4:41 PM
To: oilsofgrace@hotmail.com
Cc: Eileen O'Connor Eileen@radiationresearch.org

BS

Dear Susan
If I understand your question correctly.
No. They simply add confusion.
No. Positive studies are still positive studies.
No. they are still positive peer reviewed studies.
Regards
Brian Stein Chair Radiation Research Trust

From: Eileen O'Connor <Eileen@radiationresearch.org>
Sent: 05 June 2020 14:49
To: brian.stein61@hotmail.com <brian.stein61@hotmail.com>
Subject: FW: Question about studies with negative results

See email.

Best wishes
Eileen

From: Susan Jennings [mailto:oilsofgrace@hotmail.com]
Sent: 05 June 2020 14:38
To: eileen@radiationresearch.org
Subject: Question about studies with negative results

Hi,

I have a couple of questions about studies, in general, that show no biological effects.

1 - Do these studies negate positive studies which show biological effects?

2 - If these postive studies are negated, are they removed from your database?

3 - Are they removed from the journals in which they were published?

Thanks so much for your help,
Susan Jennings BA, MPA
Oils of Grace, LLC
Silver Wellness Advocate for dōTERRA®
WA # - 501975
724-613-4262 - H
724-600-9338 - C

"…and the leaves of the tree were for the healing of the nations." Ezekiel 47:12

dōTERRA Therapeutic Grade Essential Oils ~ Take control of your health care with dōTERRA!

My Website:

Appendix M

SOCIAL SECURITY ADMINISTRATION

Date: December 2, 2014
Claim Number: XXX-XX-1717C1

MICHAEL T JENNINGS FOR
MCKENZIE S JENNINGS
905 COUNTRY CLUB DR
GREENSBURG PA 15601-1201

You asked us for information from your record. The information that you requested is shown below. If you want anyone else to have this information, you may send them this letter.

Information About Current Social Security Benefits

Beginning December 2014, the full monthly Social Security benefit before any deductions is.....$ 799.10

We deduct $104.90 for medical insurance premiums each month.

The regular monthly Social Security payment is.....$ 694.00
(We must round down to the whole dollar.)

Social Security benefits for a given month are paid the following month. (For example, Social Security benefits for March are paid in April.)

Your Social Security benefits are paid on or about the third Wednesday of each month.

Other Important Information

MCKENZIE JENNINGS HAD A DISABLED ADULT CHILDS MEDICAL DECISION AT AGE 16 TO CONTINUE HIS MOTHER'S BENEFITS. HIS DISABLED ADULT CHILDS BENEFITS CONTINUE PAST AGE 18 BASED ON THAT DECISION.

Medicare Information

You are entitled to hospital insurance under Medicare beginning October 2014.

You are entitled to medical insurance under Medicare beginning October 2014.

Type of Social Security Benefit Information

You are entitled to monthly benefits as a disabled dependent of the wage

earner.

SUSPECT SOCIAL SECURITY FRAUD?

Please visit http://oig.ssa.gov/r or call the Inspector General's Fraud Hotline at 1-800-269-0271 (TTY 1-866-501-2101).

IF YOU HAVE QUESTIONS

We invite you to visit our web site at www.socialsecurity.gov on the Internet to find general information about Social Security. If you have any specific questions, you may call us toll-free at 1-800-772-1213, or call your local office at 877-748-9768. We can answer most questions over the phone. If you are deaf or hard of hearing, you may call our TTY number, 1-800-325-0778. You can also write or visit any Social Security office. The office that serves your area is located at:

SOCIAL SECURITY
122 W 3RD STREET
GREENSBURG, PA 15601

If you do call or visit an office, please have this letter with you. It will help us answer your questions. Also, if you plan to visit an office, you may call ahead to make an appointment. This will help us serve you more quickly when you arrive at the office.

OFFICE MANAGER

GREENSBURG, PA

DEC 02 2014

223
SSA DISTRICT OFFICE

```
HQY                          HI/SMI QUERY RESPONSE                          HIQR
                                                                  UNIT: SPL
 CAN: [redacted]-1717 C1        NAME: MCKENZIE        S JENNINGS
    MEDICARE LEGEND          MICHAEL T JENNINGS FOR  MCKENZIE S JENNINGS
      AND ADDRESS            905 COUNTRY CLUB DR     GREENSBURG PA

                                        SCC: 39770          ZIP: 15601-1201

 SEX: M       DOB: 10/03/1994  DOD:                 LAF: C   HMO: N   CWF: Y
 DOC: 223     PSC: 2     LAST XREF:                    NO. XREFS: 00
 HI - NO. ENROLLS: 01   LAST START: 10/14  RSN: DISABILITY - FREE-HI
                        LAST STOP:         RSN:
 SMI- NO. ENROLLS: 01   LAST START: 10/14  RSN: INITIAL ENROLLMENT
                        LAST STOP:         RSN:
 CARD ISSUED:  05/27/2014   CURRENT BILLING FOR HI:  N   SMI:  N   IRMAA D: N

 HI THIRD PARTY  - TYPE:          CODE:          START:          STOP:
 SMI THIRD PARTY - TYPE:          CODE:          START:          STOP:
 SMI 3RD PTY PNTY- TYPE:          CODE:          START:          STOP:
                        SELECT ONE OF THE FOLLOWING: _
1=MEQY  (ENROLL QUERY)     2=MDBQ (DIRECT BILLING)  3=MDBS  (DIR BILL MENU)
4=MMQS  (MISC QUERY MENU)  5=MARQ (MA RED QUERY)    6=IRMAA D (DIRECT BILL).
```

Exhibit N

PENNSYLVANIA PUBLIC UTILITY COMMISSION

Search for Consumer Complaints - Electric Utilities

Please note that this search returns complaints filed on or before February 15, 2018. This is a temporary issue that we are aware of and are in the process of correcting. In the interim, the Document search or New Case search can be used to retrieve more recent complaints.

The PUC's Search for Consumer Complaints allows for the search of formal consumer complaints filed with the Commission. The complaints could concern billing, difficulty contacting the company, dissatisfaction with service or other issues. The complaints should be viewed as only one measure of the company's customer service.

How to use this search:

- If you know the name of the company, use the Search for Utility by Name.
- If you are looking for more than one company, select Search for Utilities by Service Type.
- General Information about the utility and a list of Formal Complaints are accessed by clicking on the "More Info..." link for each utility.
- If complaints are found for the company, additional information can be accessed by clicking on the Docket Number.

Search for Utility by Name:

Utility Name: *(Starts With)* West Penn Power

Search Reset

Search by Utility Name or by Service Type

Search for Utilties by Service Type:

Service Type:

--- Select a Service Type ---

Search Reset

Results found: 1

	Utility Name	Utility Status	Utility Type
More Info...	WEST PENN POWER CO.	Active	Electric

Exhibit N

PENNSYLVANIA PUBLIC UTILITY COMMISSION

Utility Details

Please note that this search returns complaints filed on or before February 15, 2018. This is a temporary issue that we are aware of and are in the process of correcting. In the interim, the Document search or New Case search can be used to retrieve more recent complaints.

In addition to general information about the company, a list of formal consumer complaints is also displayed on this page. Click on one of the docket numbers in the first column to view a Case Summary that contains relevant information regarding the case, case activity and a list of public documents associated with the case.

Basic Utility Information

Utility Name: WEST PENN POWER CO.

Utility Code: 111250

Utility Type: Electric

Utility Status: Active

Utility Contact Information

Physical Address: 800 CABIN HILL
GREENSBURG, PA 15601

Phone:

Website:

Email:

Authority Information

Service Type	Authority Status	Date Certificated	Original Application Number	Trading As Name
Electric Distributor	Active	30-Jan-1979		

If you require additional information for a particular case, please contact the Secretary's Bureau at 717-772-7777.

Docketed Complaint Cases

1 2 3 4 5 6 7 8 9 10 ... Last Page

Docket Number	Case Status	Date Filed	Allegation
C-2017-2634631	Active	13-Nov-2017	Complainant states power surges damaging electrical products for 23 years. She would like the PUC to have the issue corrected by whatever means necessary.
C-2017-2634634	Active	13-Nov-2017	POWER SURGES & DAMAGE CAUSED.
C-2017-2634636	Active	13-Nov-2017	Power surges & caused damage.
C-2017-2634648	Active	13-Nov-2017	Power surges & damage caused.
C-2017-2634651	Active	13-Nov-2017	Power surges & damage caused.
C-2017-2634632	Active	13-Nov-2017	Power surges & damage caused.
C-2017-2634605	Active	13-Nov-2017	Complainant states power surges and outages for now reason. She would like the PUC to have items replaced.
C-2017-2634607	Active	13-Nov-2017	Complainant states power outage and surge damaged appliances. He would like the PUC to have damages reimbursed.
C-2017-2634646	Active	13-Nov-2017	Power surges & damage caused.
C-2017-2634660	Active	13-Nov-2017	Complainant experienced a power surge on 10/5/17 The alleged surge damaged three CFL light bulbs Complainant requests reimbursement for the three CFL light bulbs
C-2017-2634678	Active	13-Nov-2017	Complainant claims that multiple power surges have destroyed appliances, media equipment, office equipment, power strips, etc. Complainant requests improvement to the infrastructure in order to avoid surges Complainant also requests a refund for possessions that have been damaged
C-2017-2634682	Active	13-Nov-2017	Complainant claims that multiple power surges have occurred over the past years Complainant claims that on 9/11/17 a power surge occurred & destroyed two 15 amp circuits, a BlueRay CD player & a large radio system Complainant requests that the PUC investigate every power outage & surge through his community Complainant requests that the utility be held responsible for the power surges that endanger homes Complainant also requests that the utility be held accountable for not maintaining equipment infrastructure in

Exhibit N

			his area
C-2017-2634613	Active	13-Nov-2017	Power surges & damage caused.
C-2017-2634585	Active	13-Nov-2017	Complainant claims that a power surge on 9/11/17 destroyed a surge protector & a dusk to dawn light Complainant requests to be refunded for his losses
C-2017-2634608	Active	13-Nov-2017	Power surges & damage caused.
C-2017-2634614	Active	13-Nov-2017	Power surges & damage caused.
C-2017-2634610	Active	13-Nov-2017	Power surges & damage caused.
C-2017-2634653	Active	13-Nov-2017	Complainant states having power surges. She would like the PUC to have West Penn reimburse for damages.
F-2017-2632591	Active	03-Nov-2017	The utility is threatening to shut off service Billing Dispute Complainant is also having a quality problem with his utility service Complainant requests that the utility change his meter and look at lines for meter to his home
C-2017-2631748	Closed	01-Nov-2017	Complainant states that utility is threatening to shut off or has shut off service and that they would like a payment arrangement.

1 2 3 4 5 6 7 8 9 10 ... Last Page

Cancer Expert Declares Cell Phone and Wireless Radiation as Carcinogenic to Humans

Posted on Wednesday, August 16, 2017

http://www.sbwire.com/press-releases/cancer-expert-declares-cell-phone-and-wireless-radiation-as-carcinogenic-to-humans-849135.htm

Longtime World Health Organization advisor updates opinion linking wireless exposures to cancer based on new scientific evidence.

Teton Village, WY -- (SBWire) -- 08/16/2017 --An expert cancer researcher and advisor to the World Health Organization International Agency for Research on Cancer (WHO/IARC) has issued his scientific opinion that radiofrequency (RF) radiation from any source – such as the signals emitted by cell phones, other wireless and cordless and sensor devices, and wireless networks – fully meets criteria to be classified as a "Group 1 carcinogenic to humans" agent, based on scientific evidence associating RF exposure to cancer development and cancer promotion.

"The evidence indicating wireless is carcinogenic has increased and can no longer be ignored," stated Dr. Anthony B. Miller at a July 31, 2017 lecture in Jackson Hole, Wyoming sponsored by the Environmental Health Trust where international experts presented the best available science on cell phone and wireless radiation. In 2011, WHO/IARC classified RF radiation from any source as a "Group 2B possibly carcinogenic to human" agent. Miller believes the evidence published since 2011 fulfills the requirements to re-classify RF radiation as a "Group 1 carcinogenic to humans" agent.

Miller explained that the basis for his opinion includes recent scientific publications which include the 2017 re-analysis of data from the Interphone study, the 2014 French National CERENAT Study, several new publications on Swedish cancer data, and the 2016 results of the National Toxicology Program.

Dr. Anthony B. Miller is a physician epidemiologist who specializes in cancer etiology, prevention, and screening. Miller is Professor Emeritus at the Dalla Lana School of Public Health of the University of Toronto and Senior Medical Advisor to the Environmental Health Trust. He has been a longtime advisor to the World Health Organization (WHO) and was Senior Epidemiologist for the International Agency for Research on Cancer (IARC). He served as Director of the Epidemiology Unit of the National Cancer Institute of Canada, Chair of the Department of Preventive Medicine and Biostatistics at the University of Toronto, Head of the Division of Cancer Epidemiology at the German Cancer Research Centre, and Consultant to the Division of Cancer Prevention of the U.S. National Cancer Institute. He has performed research about electromagnetic fields and cancer and has served on many committees assessing carcinogenicity of various exposures. Miller was visiting Senior Scientist in the IARC Monographs programme as a reviewer to the scientific literature supporting designation of Radiofrequency Electromagnetic Fields (RF-EMF) as a Group 2B possible carcinogen in 2011.

Other experts agree that the increased evidence now establishes RF radiation as a human carcinogen. For example, researchers Dr. Lennart Hardell and Michael Carlberg have published several epidemiological studies that found increased brain cancer associated with long-term cell phone use and conclude that "RF radiation

should be regarded as a human carcinogen causing glioma." In addition, published epidemiological research has also found persons diagnosed with brain cancer had decreased survival rates associated with higher wireless phone use.

In response to skeptics who claim, "There is no evidence," researchers point to published research that has consistently found increased cancer risk in well-designed case control studies that have looked at persons who used cell phones for more than ten years.

The July 31, 2017 panel presentation included international experts. Dr. Annie Sasco presented the WHO/IARC process used to classify carcinogenic agents. Dr. Devra Davis presented research finding wireless radiation results in sperm damage and alters brain development. Dr. Moe Mellion presented Dr. Iris Udasin's clinical cases of World Trade Center first responders who developed brain cancer after combined environmental exposures to chemical toxins and wireless radiation. Theodora Scarato, MSW presented policies enacted by governments worldwide to reduce RF radiation exposures. Dr. Marc Arazi presented data released by the cell phone radiation test program of the Government of France, which found that when cell phones are tested in body contact positions, RF radiation exposure exceeds regulatory limits. Environmental Health Trust plans to post all lectures and videos from the July 31, 2017 presentation online.

About Environmental Health Trust
Environmental Health Trust (EHT) educates individuals, health professionals and communities about controllable environmental health risks and policy changes needed to reduce those risks. Currently EHT is raising health concerns about cell phones and wireless in schools and recommends practical steps to reduce exposures. The Environmental Health Trust maintains a regularly updated database of worldwide precautionary policies on cell phone radiation and health. The foundation's website is the go-to place for clear, science-based information to prevent disease.

View and Download Dr. Anthony Miller's July 31, 2017 Presentation from the Symposium
https://ehtrust.org/wp-content/uploads/Dr.-Anthony-Miller-Presentation-July-31-2017.pdf

Scientific Publications on Cell Phone Radiation and Cancer Referenced in Dr. Miller's Presentation
https://ehtrust.org/references-cell-phone-radio-frequency-radiation-cancer/

Watch an excerpt from Dr. Anthony Miller's lecture on July 31, 2017
https://www.youtube.com/watch?v=bgGJeOVEdQs

Media Relations Contact

Janet Vasquez
media contact
JV Public Relations NY Inc.
212-645-5498
http://www.ehtrust.org

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MICHAEL T. JENNINGS	:	
	:	
v.	:	**Docket No. C-2018-3006031**
	:	
WEST PENN POWER COMPANY	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the **Main Brief of Complainant Michael T. Jennings** upon the individuals listed below, in accordance with the requirement of 52 Pa. Code § 1.54 (relating to service by a participant.)

Service by e-filing, email, and first-class mail:

Administrative Law Judge Jeffrey A. Watson
Pennsylvania Public Utility Commission
Piatt Place, Suite 220
301 5th Avenue
Pittsburgh, PA 15222

Lauren Lepkoski
Tori Giesler
FirstEnergy Service Company
2800 Pottsville Pike
P.O. Box 16001
Reading, PA 19612-6001
llepkoski@firstenergycorp.com
tgiesler@firstenergycorp.com

Service by email:

Dan Pallas, Legal Assistant
dpallas@pa.gov

Dated: October 9, 2020

Michael T. Jennings
200 Brook Hollow Road
Mount Pleasant, PA 15666
724-613-4262
Lilmac2@zoominternet.net