Noreen McCarthy
18 Millstone Lane
Pottstown, PA 19465
610-469-2009

August 21, 2019

VIA E-FILING

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

Re: Noreen McCarthy v. Metropolitan Edison Company

Docket No. C-2019-3006923

Dear Secretary Chiavetta:

Attached is my Second Amended Formal Complaint in the above-referenced matter. This document has been served on the Respondent as shown in the Certificate of Service.

Please feel free to contact me with any questions.

Sincerely,

Noreen McCarthy

Enclosure

cc: ALJ Jeffery A. Watson
Certificate of Service

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

NOREEN MCCARTHY	**:**	
	:	
v.	**:**	**Docket No. C-2019-3006923**
	:	
METROPOLITAN EDISON COMPANY	**:**	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of my Second Amended Formal Complaint upon the individuals listed below, in accordance with the requirements of 52 Pa. Code § 1.54.

Service by email, as follows:

Lauren M. Lepkoski
Tori L. Giesler
FirstEnergy Service Company
2800 Pottsville Pike
P.O. Box 16001
Reading, PA 19612-6001
llepkoski@firstenergycorp.com
tgiesler@firstenergycorp.com

Dated: August 21, 2019

Signature: Noreen McCarthy

Noreen McCarthy
18 Millstone Lane
Pottstown, PA 19465
610-469-2009
contactnoreen1@gmail.com

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

Noreen McCarthy	**:**	
	:	
v.	**:**	
	:	**Docket No. C-2019--3006923**
Metropolitan Edison Company	**:**	

Second Amended Formal Complaint

TO THE PENNSYLVANIA PUBLIC UTILITY COMMISSION:

I. INTRODUCTION

In addition to the violations stated in the Formal Complaint eFiled on January 7, 2019 and the First Amended Formal Complaint eFiled on March 11, 2019, the Complainant (I) am further amending my formal complaint due to new facts I have learned.

Pursuant to Section 701 of the Public Utility Code, 66 Pa. C.S. § 701 and Sections 5.91, and 1.81 of the Commission's Regulations, 52 Pa. Code § 5.91 and § 1.81, the Complainant in the above-captioned matter respectfully submits this Second Amended Formal Complaint. In support of her Second Amended Formal Complaint, the Complainant sets forth the following.

- The Complainant is:

  Noreen McCarthy
  18 Millstone Lane
  Pottstown, PA 19465

- Respondent is Metropolitan Edison Company ("Met-Ed"), an Electric Distribution Company ("EDC") regulated by the Commission.
- Complainant is an electric customer of Met-Ed receiving residential service at the address above.

In addition to the violations stated in the Formal Complaint eFiled on January 7, 2019 and the First Amended Formal Complaint eFiled on March 11, 2019, I, the Complainant, am further amending my formal complaint due to new facts I have learned. In this Second Amended Formal Complaint Complainant includes the following:

I. facts demonstrating that MetEd would be in violation of Act 129 if the Complainant's electromechanical analog meter were to be removed from her house and replaced with a smart meter;

II. that any claim from MetEd and/or the PA PUC that it is state mandated to force a smart meter on Complainant's home does not meet the test of reasonableness and does not comply with any rational legal basis;

III. that if Met Ed were to remove my fully functioning, safe, effective electromechanical analog meter and replace it with any device that emits RF radiation/microwave radiation such as a smart meter, that it would be an act of assault.

To navigate addressing each of the above in greater detail, the following corresponding outline is provided:

I. FACTUAL EVIDENCE OF ACT 129 VIOLATION BY MET-ED

The following subsections elucidate facts demonstrating that MetEd would be in violation of Act 129 if the Complainant's electromechanical analog meter were to be removed from her house and replaced with a smart meter. Any text appearing in bold is done by the Complainant for emphasis.

I a. Evidence of the Voluntary Nature of Act 129

The Federal Energy Bills of 2005 and 2007 established a **voluntary Federal Smart Meter program**. These Federal laws stipulated that consumers must be offered a Smart Meter, which **they have the right to refuse** or accept. And, they also stipulated that consumers can request a Smart Meter, and can volunteer to opt-in to the Smart Grid, if they so desire, and the states must comply. This was the Smart Meter charter that the Federal government provided to the states, and it **is a matter of record. The Pennsylvania General Assembly passed**

Act 129 in keeping with this voluntary Federal program. **The Pennsylvania State Legislators who passed Act 129 stated categorically at the time of that passage that Smart Meters were not mandated, and that participation was voluntary.** And, that is a matter of record as well. The Complainant (I) have never requested a Smart Meter, and have never volunteered to opt-into the Smart Grid, as is my right per the Federal charter and Act 129. And, Complainant (I) respectfully request that the Commission rule that it is a Material Fact that this is the case.

I b. Evidence of the Bastardization of Act 129

Complainant (I) aver the rights, privileges, immunities, and protections afforded to me as stated in Act 129. Any attempt at a forced installment of a smart meter or any such device that emits RF/microwave radiation on my property will be in direct violation of Act 129 as it is clearly and explicitly written. The Commission is legally and ethically bound to acknowledge, respect, and uphold the Federal Energy Bills of 2005 and 2007 and Act 129 as stated, which is an opt-in program.

The Complainant presents the following reference to Act 129:

"Section 2807 of the Public Utility Code provides:
(f) Smart meter technology and time of use rates.
(2) Electric distribution companies shall furnish smart meter technology as follows:
(i) Upon request from a customer that agrees to pay the cost of the smart meter at the time of the request.
(ii) In new building construction.
(iii) In accordance with a depreciation schedule not to exceed 15 years.
[66 Pa. C.S. § 2807(f)(2).n]

Bastardization of Act 129 is seen as early as the March 5, 2009 documented power point presentation by PUC Commissioner Kim Pizzingrilli and counsel Shane Rooney, titled, "Act 129 of 2008 Overview and Implementation" Exhibit A2-1 shows the title slide, presentation outline and slide 12 on "Smart Metering Mandate" of relevance to this discussion.

In Slide 12, Ms. Pizzingrilli and Mr. Rooney, in their respective official capacity representing the PUC, state the following:

"At a minimum, smart meters must be provided upon customer request (if customer pays), in all new building construction in the service territory, and to all other customers within 15 years."

If we reformat this sentence to mimic the structure of Act 129, what the PUC Implementation presentation states is:
At a minimum, smart meters must be provided
(i) upon customer request (if customer pays),
(ii) in all new building construction in the service territory,
(iii) and to all other customers within 15 years.

Changes are thus noted as follows:

- **"At a minimum" has been added that was absent in the original;**
- **"shall furnish" has been replaced by "must be provided";**
- (i) the original Act 129 opt-in mandate is preserved
- **(ii) the word "all" has been added that was not present in the original**
- (iii) ***complete rewording*** to reflect earlier house bill versions **that were NOT PASSED**, and no mention of the smart meter's depreciation schedule which is not to exceed 15 years.

The PUC's ***actual implementation*** of smart meters mirrors the intent iterated explicitly in their March 5, 2009 presentation, contrary to the language in their Implementation Order of June 2009 which attempts to make it look like they are following Act 129. For example, for the third clause of Act 129 § 2807(f)(2), the Implementation Order of June 2009 states as follows (Section 4: System-Wide Deployment, p. 14):

"The Commission **believes that it was the intent** of the General Assembly to require all covered EDCs to deploy smart meters system-wide when it included a requirement for smart meter deployment "in accordance with a depreciation schedule not to exceed 15 years." It is this system-wide deployment that will provide the foundation for the EDCs' smart meter installation plans."

Believing "it was the intent" is insufficient justification for the corruption of the **clearly non-mandatory intent** with which Act 129 was passed and signed into law. The intent was clear **but was internally altered to intents which were NOT PASSED into law.** The historical record is quite clear on this point.

The following are the wording of the third clause for which there was a mandatory intent to replace all analog meters **which was NOT PASSED into law:**

Bill # PN 3218 on February 11, 2008 and Bill # PN 3233 on February 12, 2008:

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

Bill # PN 4429 in the Senate as of September 23, 2008

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

The following WAS passed (House Bill 2200, PN 4526):

Bill # PN 4526 in the Senate as of October 7, 2008

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

HB2200 was signed into law as Act 129: APPROVED--The 15th day of October, A. D. 2008 by EDWARD G. RENDELL

and clause (iii) continues to state:

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

Please note that all language mandating universal deployment of smart meters within a certain number of years or replacing of existing meters ***has been removed from the version that was passed***. This third clause that ***was passed*** conflates an accounting term (depreciation) with the EDC's scheduling of providing smart meters to those who request them. Given that the IRS allows for as little as a 5-year depreciation schedule for smart meters (given their short life expectancy of ~5-7 years according to the October 21, 2015 Congressional Testimony of Mr. Bennett Gaines, on behalf of First Energy Service Company), the 15 year depreciation schedule is generous. Utilities may be citing a 15 year life expectancy to fudge cost-benefit analyses that justify their smart meter deployment, but the IRS depreciation schedule for them speaks otherwise.

Therefore the third clause of Act 129 *as it was passed* and *according to the intent* with which it was passed ***does not*** carry with it a universal deployment of smart meter mandate as the PUC and EDCs have claimed. To reiterate: Prior to passage of Act 129, versions of the house bills which mandated universal deployment were *not passed*. The third clause in Act 129's § 2807(f)(2) cannot be used to justify forcing smart meters on Pennsylvania customers.

I c. Evidence of the Intent of Act 129

There is incontrovertible evidence from the General Assembly itself as to ***the intent*** of Act 129 as written and passed. The history of the passage of Act 129 is found at this link for House Bill 2200:

http://www.legis.state.pa.us/cfdocs/billinfo/bill_history.cfm?syear=2007&sind=0&body=H&type=B&bn=2200

Below are remarks relevant to smart meters made by members of the General Assembly about Bill # PN3218 (which mandated smart meters) as recorded in the House Journal, February 11, 2008, pages 386-403, bolded text added for emphasis:

p. 390
Mr. HUTCHINSON

> Those who can save by having a smart meter, it would make sense for them to have smart meters in their home. **Mandating it across the board mandates that everybody pays whether they save or not, and that just does not make sense.**

pp. 390-391
Mr. GODSHALL

> Are we not saying that you must do it? We are taking that choice away from the consumer, I believe, and **I would have no problem with this if we do it on a choice basis,** as you used the word "choice" before. We are taking that choice away.
>
> **What I am not in full agreement on in any way is that everyone is mandated to, whether they intend to use it or not, whether they know how to use it or not, everyone is mandated, under this legislation, to go ahead with the smart meter technology.**

p. 393

Representative Smith.

> **If we really want to encourage people to use it, I think we ought to allow them to engage it themselves as opposed to forcing them to pay for something they may not use, and that is really the difference, Mr. Speaker, in what I think is right or wrong with this amendment.**

Mr. SAYLOR.

> Mr. Speaker, I want to make it clear to everybody, **this is a mandate. This is not voluntary; it is a mandate required to use smart meters in Pennsylvania.**
> … **it still needs to be a consumer choice, not a General Assembly mandate onto consumers that is going to cost them more in their electric bill.**

p. 395

Mr. BENNINGHOFF

> And again I thank the maker of the amendment for his time in answering those questions. **I guess my reservation, obviously, is do we want a statewide mandate? Do we want the government telling you that you have to have a meter put in your property?**
> **… I think it is important that we are smart about our energy use, but I also think we have to think about what government's role is in mandating such a thing.**

p. 397

Mr. GABIG

> I think that the gentleman from York, Stan Saylor, mentioned that Adams Electric Co-op has a similar program, **but it is not forced on people; it is a voluntary program, and they can use the market to decide whether they want to do it or not.**

The next version of the bill # PN3233 did not alter the mandatory language and again we see a comment in the record (House Journal, February 12, 2009, pages 430-432) opposing this language and intent:

p 431

Mr. HUTCHINSON

> Mr. Speaker, **I rise in opposition** to passage of HB 2200, and let me tell you why. … **the amendments passed yesterday, which mandated universal smart meters across Pennsylvania, that is a fatal flaw that makes this bill a bad idea for Pennsylvania. It is bad for the consumers of Pennsylvania who will have to pay for those smart meters, whether they save on their electric bills or not. It makes no sense whatsoever to force people to pay for those smart meters and then, in addition, still pay higher and higher utility bills.**
>
> **…use technology like smart meters in a targeted and commonsense way instead of a mandated, across-the-board consumer tax – that is what it is, a couple hundred dollars per person – that will have to be paid to pay for these smart meters.**

The above excerpts indicate that in the early stages of the development of Act 129 as House Bill 2200, when "mandatory deployment" of smart meters was clearly in the language of those early drafts, numerous members

of the General Assembly voiced their concerns and opposition to forcing smart meters on Pennsylvania residents. By contrast, when the language of the bill was changed and removed all reference to existing analog meters as well as removing all reference to universal deployment of smart meters, the Senators who passed it (and subsequent final passage in the General Assembly) voice their satisfaction that what was passed was NOT MANDATORY, as documented in the Senate Journal on October 8, 2008, pages 2626-2631, following the passage of HB 2200, PN # 4526:

Senator Tomlinson:

> **It is not mandated, but it allows for… anyone who wants to purchase a smart meter which they feel will help them manage their electric load better.**

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.**

Senator Fumo:

> **In addition, we did not mandate smart meters, but we made them optional.**

These declarations by the legislators and senators who passed Act 129 are unequivocal, unambiguous, and irrefutable. The *non-mandatory intent* with which they passed Act 129 is also unequivocal, unambiguous, and irrefutable.

II. STANDARDS OF REASONABLENESS

The following subsections elucidate that any claim from MetEd and/or the PA PUC that it is state mandated to force a smart meter on Complainant's home does not meet the test of reasonableness and does not comply with any rational legal basis. Any text appearing in bold is done by the Complainant for emphasis.

II a. Definition and Application to the Language of Act 12

A commonly accepted "standard of reasonableness" applies to the interpretation of any written material that has ever been produced. **The law recognizes this standard; otherwise a law is subject to interpretive contrivance and has no meaning.**

This reasonableness standard exists in contract law. It is used to determine contractual intent, or if a breach of the standard of care has occurred, provided a duty of care can be proven. The standard that is applied is that intent of a party is determined by examining the understanding of a reasonable person. The *Trans-Lex.org* Law Search defines the standard as:

> **Principle No. 1.2.1 - Standard of reasonableness: The parties always have to act according to what is reasonable in view of the particular nature of their transaction and the circumstances involved, in particular the economic interests and expectations of the parties.**

The most reasonable interpretation of the section of Act 129, C.S. § 2807(f) (2) copied here, to a reasonable person reading this is that smart meters are for customers that request one:

Articles (i) and (ii)	clearly and explicitly indicate who / what "**shall be furnished**" with Smart Meter Technology;
and Article (iii)	clearly and explicitly indicates how / when that Smart Meter Technology "shall be furnished" to those cited in Articles (i) and (ii).

Complainant has further broken down each Article in succession for additional clarification:

(i) The first and foremost stipulation, § 2807 (f) (2) (i), states that EDCs "**shall furnish**" smart meter technology "**upon request from a customer that agrees to pay the cost of the smart meter at the time of the request"**

This specifies a voluntary opt-in stipulation which explicitly states that customers may choose to join the Smart Meter program if they so desire. It further states that if a customer does request a Smart Meter and agrees to pay the cost the EDCs "**shall furnish**" that Smart Meter technology. There is no ambiguity here. And, as the foremost stipulation, it sets the basis and tone in establishing the intention of Act 129, especially in light of the documented declarations of the Legislators.

(ii) The second stipulation, § 2807 (f) (2) (ii), states that EDCs "**shall furnish**" smart meter technology "in new building construction."

This specifies that EDCs "**shall furnish**" smart meter technology in new building construction. Note, that it does not specifically state that the builder "must" have that technology installed. It only states that the EDCs "shall furnish" it (i.e. "shall provide" it). The implication being that it remains at the discretion of the builder even in the case of new building construction. Furthermore, the law does not state "in **all** new construction" as was discussed in section 2 above. There is no ambiguity here.

(iii). The third stipulation, § 2807 (f) (2) (iii), states that EDCs "**shall furnish**" smart meter technology "in accordance with a depreciation schedule not to exceed 15 years."

This specifies that the EDCs "**shall furnish**" smart meters as per Articles (i) and (ii) over the length of time of the depreciation schedule of the smart meters (maximum of 15 years). As the life expectancy of a smart meter is 5-7 years, its depreciation schedule should be less, but citing up to 15 years in Act 129 was generous. The 15 years is reasonable since the EDCs already have fully functioning analog meters deployed in the field, and they have an inventory of Analog Meters already purchased and in stock. It would be unreasonable to expect the EDCs to immediately and completely abandon their stockpile of analog meters, and furnish smart meters immediately upon request. So, this stipulation allows the EDCs a time frame, 15 years, to phase in the **requested** smart meters and has no bearing otherwise on replacement of existing analog meters. This third stipulation (or clause) does not override or supersede the previous stipulations (Articles (i) and (ii)), as that would cause an irreconcilable conflict. Finally, as discussed in section 2, above, the third stipulation was passed with a non-mandatory intent, and earlier bill versions mandating universal deployment of smart meters *were not passed*. There is no ambiguity here.

Thus, Act 129 as written and passed defines a voluntary "Opt-ln" program. Complainant avers that this is the only interpretation that meets a "standard of reasonableness" as to the meaning and intent of Act 129 as passed, and signed by Governor Rendell. Therefore, any attempt of forcing a smart meter on the Complainant's home would be in direct violation of Act 129.

II b. Legal Use of the Word "Shall"

It is important that the PA PUC and Met Ed understands the use of the word "**shall"** in C.S. § 2807(f) (2). **The statute explicitly states "shall furnish", not "must furnish"**. **"Shall" and "must" do not mean the same thing legally**. The legal standard is that "must" is the only word that imposes a legal obligation. "Shall" does not. "**Must" is legally accepted as the only clear, valid way to express "mandatory."**

- **The Supreme Court, the highest and final judicial authority in the country, has ruled that when the word "shall" appears in statutes, it means "may."** (Gutierrez de Martinez v. Lamagno 515 U.S. 417 (1995))
- **Bryan Garner**, the legal writing scholar and editor of **Black's Law Dictionary**, wrote that **"In legal instruments, "shall" violates the presumption of consistency.**
- **The Federal Register Document Drafting Handbook (Section 3) states that "must" imposes a legal obligation. "Shall" does not.**
- **The Federal Plain Language Guidelines (page 25)** referred to in the Federal Plain Writing Act of 2010, **specifies that "must", not "shall", is used to indicate a requirement.**
- In legal reference books like the **Federal Rules of Civil Procedure the accepted legal standard is that "must" imposes a legal mandate or obligation, "shall" does not.**

Nearly every jurisdiction has held that the word "shall" does not definitively mean "must".

According to accepted legal standards and precedents that go as high as the US Supreme Court, any ruling declaring that the use of the word "shall" imposes a legal obligation or mandate, in a statute or otherwise, is in error.

III. ACT OF ASSAULT

The following subsections elucidate that if Met Ed were to remove my fully functioning, safe, effective electromechanical analog meter and replace it with any device that emits RF radiation/microwave radiation such as a smart meter, that it would be assault on Complainant, her family, and all animals living in her home. As the definition of assault involves the threat of bodily harm, evidence is first presented to demonstrate such threat exists and is valid. Any text appearing in bold is done by the Complainant for emphasis.

III a. Evidence of Health Hazards in the Scientific Literature

Any claim stating that a smart meter is mandated and must be placed on the Complainant's home is at best ignorant, or at worst is criminal. **It is an act of assault if a smart meter is placed on Complainant's home**. A smart meter is a radio frequency radiating device which thousands of peer-reviewed studies have shown are

detrimental to all living beings. Plausible deniability is no longer allowed because of scientific proof of harm that is caused by RF radiating devices, particularly those that encode information using modulated carrier waves such as cell phones (referred to as "mobile telephony" in European countries) and smart meters.

According to Dr. Martin L. Pall, Professor Emeritus of Biochemistry and Basic Medical Sciences from Washington State University, there are **"…some 20,000 papers on microwave biological effects show that the current international safety standards do not predict biological hazard. Such standards are based on the false assumption that the predominant effects of microwave and other low frequency EMF exposures are due to heating."** [Reference: Pall, M.L., 2014, "Microwave Electromagnetic Fields Act by Activating Voltage-Gated Calcium Channels: Why the Current International Safety Standards Do Not Predict Biological Hazard" *Recent Res. Devel. Mol. Cell. Biol*.,7:1-15; link: http://wirelesseducationaction.org/wp-content/uploads/2014/11/microw-vgccnoheat.pdf]

The following series of excerpts from the science literature are a tiny sampling of these 20,000 published papers showing biological effects from microwave/RF exposures well below the present safety guidelines.

III a i. EXCERPT 1: Example of DNA Damage

Below is the introduction of "Comparing DNA damage induced by mobile telephony and other types of man-made electromagnetic fields," by Dimitris J. Panagopoulosa, (National Center for Scientific Research "Demokritos" and Choremeion Research Laboratory, Medical School, National and Kapodistrian, University of Athens, Greece). Any text appearing in bold is done by the Complainant for emphasis.

A B S T R A C T

The number of studies showing adverse effects on living organisms induced by different types of man-made Electromagnetic Fields (EMFs) has increased tremendously. Hundreds of peer reviewed published studies show a variety of effects, the most important being DNA damage which is linked to cancer, neurodegenerative diseases, reproductive declines etc. Those studies that are far more effective in showing effects employ real-life Mobile Telephony (MT) exposures emitted by commercially available mobile phones. The present review - of **results published by my group from 2006 until 2016** - compares DNA fragmentation induced by six different EMFs on the same biological system - the oogenesis of Drosophila melanogaster - under identical conditions and procedures. Such a direct comparison between different EMFs - especially those employed in daily life - on the same biological endpoint, is very useful for drawing conclusions on their bioactivity, and novel. It shows that **real MT EMFs are far more damaging than 50 Hz alternating magnetic field (MF) - similar or much stronger to those of power lines - or a pulsed electric field (PEF)** found before to increase fertility. The MT EMFs were **significantly more bioactive even for much shorter exposure durations** than the other EMFs. Moreover, they were more damaging than previously tested cytotoxic agents like certain chemicals, starvation, dehydration. Individual parameters of the real MT EMFs like intensity, frequency, exposure duration, polarization, pulsing, modulation, are discussed in terms of their role in bioactivity. **The crucial parameter for the intense bioactivity seems to be the extreme variability of the polarized MT signals, mainly due to the large unpredictable intensity changes.**

1. Introduction

1.1. Microwave EMFs, DNA damage and related effects The number of published peer review studies showing DNA damage and related effects induced by Radio Frequency (RF)/microwave Electromagnetic Fields (EMFs), especially by Mobile Telephony (MT)

EMFs, on a variety of organisms/cell types under different experimental conditions is increased considerably in recent years [1–36], in spite of attempts to dispute some of them [37–39]. Specifically, the damage on reproductive cells of different animals found in several of the above studies explains other findings connecting microwave EMF exposure with insect, bird, and mammalian (including human) infertility [40–48], or reduction in bird and insect (especially bees) populations during the past 10–15 years [49–53].

The effects on DNA and reproduction reported by different labs on a variety of animals demonstrate a remarkable similarity. For example, Sharma and Kumar [47] found a large decrease in reproduction (egg laying) of bees after exposure to mobile phone radiation, which was identically observed before in fruit flies [15,16,41,42] and birds [49–51]. The recorded decreased reproduction is strongly corroborated by very similar effects in amphibians [54,55], rats [17,46], and human sperm [44]. This unique similarity of effects in different organisms found by different research groups can be explained by the observed cell death induction in reproductive cells due to DNA damage found for Drosophila ovarian cells [15,16], human sperm cells [22], mice and rat sperm cells [10,17], and chick embryos [36]. It is evident that such a similarity of findings is not a coincidence.

It is important to note that the exposure levels in the majority of the above studies were below the officially accepted exposure limits [56] and only in a few of them [4–6,13] they were slightly exceeding these limits.

[Reference: Panagopoulosa , D. J., 2019 "Comparing DNA damage induced by mobile telephony and other types of man-made electromagnetic fields," *Mutation Research/Reviews in Mutation Research* 781:53-62]

III a ii. EXCERPT 2: National Toxicology Program Study Results

The National Toxicology Program (NTP) study on rats to daily exposure from cell phone radiation ("radiofrequency radiation" or RFR) was a landmark study in that it was government funded and well designed. The authors of this study conclude (in their technical report summary):

In males for both GSM- and CDMA-modulated RFR, we conclude that exposures increased the number of animals with tumors in the heart. Tumors of the brain were also considered to be related to exposure; and increased numbers of male rats with tumors of the adrenal gland were also related to exposure. We are uncertain whether occurrences of prostate gland, pituitary gland, and pancreatic islet tumors in male rats exposed to GSM-modulated RFR and pituitary gland and liver tumors in male rats exposed to CDMA-modulated RFR were related to RFR exposures. This was also the case with female rats, where we conclude that exposure to GSM- or CDMA-modulated RFR may have been related to tumors in the heart. For females exposed to CDMA-modulated RFR, occurrences of brain and adrenal gland tumors may have been related to exposure.

The excerpt below is a commentary on the NTP study results by, Dr. Ronald Melnick, a qualified expert in the field. This public commentary was posted on November 1, 2018 on the Environmental Health Trust website:

https://ehtrust.org/statement-by-ronald-melnick-phd-on-the-national-toxicology-program-final-reports-on-cell-phone-radiation/

As cited in the above link, Dr. Melnick's background and credentials are described (bold text in original):

"**Ronald L Melnick, PhD, was a senior scientist for 28 years with National Institutes of Health leading studies on numerous industrial chemicals and** led the design of the National Toxicology Program/National Institute of Environmental Health Sciences' Cell Phone Radiofrequency Radiation Studies. Melnick was Director of Special Programs in the Environmental Toxicology Program at the National Institute of Environmental Health Sciences (NIEHS), National Institutes of Health, USA and is now retired and Senior Advisor to Environmental Health Trust."

Dr. Melnick's statement is as follows (bold text added by Complainant):

> **An important lesson that should be learned from the NTP studies on cell phone radiofrequency radiation is that we cannot assume any current or future wireless technology is safe without adequate testing.** In the interest of public health, government agencies must utilize results from these well-conducted health effects studies and issue clear recommendations to the public on how to reduce exposures to agents that are hazardous to our health. **The NTP studies clearly show that non-ionizing radiation can cause cancers and other adverse health effects.**
>
> Prior to the start of the NTP studies, it was assumed by the industry and the regulatory agencies that radiofrequency radiation could not cause adverse health effects other than those due to tissue heating. So we designed this study to investigate if non-thermal exposures would cause health effects. **In the NTP studies, there was clear evidence of cancer development and other adverse health effects at non thermal exposure levels. In the US, the FCC limits for human exposure to radiofrequency radiation are based on the assumption that only thermal effects can cause harm. The NTP studies prove this assumption of safety is not valid.**
>
> **All new wireless technologies**, including 5G, **should be adequately tested** before their implementation leads to unacceptable levels of human exposures and increased health risks.
>
> It has been said that the NTP cell phone exposures were "high" and therefore the findings may not be applicable to humans. No toxicology or carcinogenicity studies mimic exactly human exposure scenarios. Higher levels of exposure than what most people experience are used in experimental studies due to their limited statistical power and their inability to identify risks in the range of one per thousand or one per million. Because of the widespread use of cell phones among the general public, even a small increase in cancer risk would have a serious public health impact.
>
> Results from well-conducted animal studies have been and will continue to be used to quantify the health risks, including cancer risks, under various human exposure conditions. A quantitative risk assessment of the data from the NTP studies on cell phone radiofrequency radiation needs to be performed by the FDA and that information should be used by the FCC to develop health-protective exposure standards. In fact, it was the FDA that nominated cell phone radiofrequency radiation to the

NTP, and I quote "to provide the basis to assess the risk to human health of wireless communication devices." Therefore, I urge the FDA to immediately conduct the risk assessment of the NTP data.

The NTP studies not only found cell phone radiation increased tumors in the heart and brain but also induced heart damage (cardiomyopathy of the right ventricle in male and female rats) and DNA damage in brain cells of rats and mice. Health and regulatory agencies need to warn the public about the health effects of radiofrequency radiation and provide clear information on how to reduce exposures, especially for children and pregnant women.

We also can no longer state that adverse effects of radiofrequency radiation are not replicated. **Increases in tumors from cell phone radiation have indeed been replicated in several studies.** The Ramazzini Institute large-scale rodent study found increased Schwannomas in the heart at lower radiation levels than in the NTP studies. The Lerchl et al., 2015 study also found radiofrequency radiation (at significantly lower doses than the NTP studies) promoted cancer development, with evidence for a heightened synergistic impact when combined with a known carcinogen. It should also be noted that the adverse health effects caused in rats exposed to GSM-modulated radiofrequency radiation were also observed in rats exposed to CDMA-modulated radiofrequency radiation.

[References:

National Toxicology Program: "NTP technical report on the toxicology and carcinogenesis studies in Hsd: Sprague Dawley sd rats exposed to whole-body radio frequency radiation at a frequency (900 MHz) and modulations (GSM and CDMA) used by cell phones." NTP TR. 595: November 2018.

Link: https://ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/tr595_508.pdf
Statement by Dr. Melnick:
https://ehtrust.org/statement-by-ronald-melnick-phd-on-the-national-toxicology-program-final-reports-on-cell-phone-radiation/]

The NTP study is important and relevant to my (the Complainant's) case because real cell phones were used in it – two types: GSM- and CDMA-modulated radiofrequency radiation, **which is similar to how information is encoded when smart meters transmit their signals**. While some critics claimed the exposure levels in the NTP experiment were higher than what is normally recommended as safe, in truth people today are getting exposure significantly higher than these because of workplace and school WiFi in addition to their cell phones, Bluetooth devices (audio speakers, ear buds and hearing aids), wireless fitness watches, baby monitors, sensors in new cars, and now the smart meter radiation. The constant bombardment is sure to exceed the exposures of the rats in the NTP study and is not without consequences in due time. We see evidence for this in youth today who suffer from alarmingly high rates of anxiety and depression without making the connection back to a contributing or causal source: over-exposure to microwave radiation from wireless devices. The evidence that exposures to radiation from wireless signals can lead to cancer is obviously most concerning and no longer deniable due to the NTP study results and replicated studies that showed carcinogenic effects at even lower levels of radiation than those used in the NTP study.

To reiterate Dr. Melnick's words, "A quantitative risk assessment of the data from the NTP studies on cell phone radiofrequency radiation needs to be performed by the FDA and that information should be used by the FCC to develop health-protective exposure standards." The FCC guidelines are inadequate to protect the public

from the cumulative damage from daily exposure to **all of this RF/microwave radiation, including from smart meters radiation in our homes. No long-term safety studies have been conducted on smart meter radiation, and it is only long-term studies that will have meaningful results.**

III b. Mechanisms by which Smart Meter Emissions Cause Bodily Harm

The recent (2016) landmark publication of Emeritus Professor Martin Pall provides clear and convincing evidence in the medical literature on how chronic exposure to low-level microwaves are causing bodily injury by inappropriately activating voltage gated calcium channels which are found throughout the body, in particular in nerve tissue. "Non-thermal microwave/lower frequency electromagnetic fields (EMFs) act via voltage-gated calcium channel (VGCC) activation." (Pall 2016) Proof is that calcium channel blockers will prevent the adverse reaction that causes damage. Dr. Pall's article is titled "Microwave frequency electromagnetic fields (EMFs) produce **widespread neuropsychiatric effects including depression**." (Pall, M.L., 2016 *J. of Chemical Neuroanatomy* 75:43-51.) Examples therein cite symptoms arising from exposure to smart meter radiation which are consistent with the underlying explanation of VGCC activation.

In Dr. Pall's earlier (2015) comprehensive overview of VGCC activation by low-level microwave radiation, the abstract provides a nice summary of the damage that can be done when these VGCCs are stimulated to inappropriately release calcium ions in the body. The following abstract is excerpted from Pall, M.L., "Scientific evidence contradicts findings and assumptions of Canadian Safety Panel 6: microwaves act through voltage-gated calcium channel activation to induce biological impacts at non-thermal levels, supporting a paradigm shift for microwave/lower frequency electromagnetic field action." *Rev. Environ Health* 2015:30(2):99-116 (https://www.ncbi.nlm.nih.gov/pubmed/25879308) Any text appearing in bold is added by the Complainant for emphasis.

Abstract

This review considers a paradigm shift on microwave electromagnetic field (EMF) action from only thermal effects to action via voltage-gated calcium channel (VGCC) activation. Microwave/lower frequency EMFs were shown in two dozen studies to act via VGCC activation because all effects studied were blocked by calcium channel blockers. This mode of action was further supported by hundreds of studies showing microwave changes in calcium fluxes and intracellular calcium [Ca2+]i signaling. **The biophysical properties of VGCCs/similar channels make them particularly sensitive to low intensity, non-thermal EMF exposures. Non-thermal studies have shown that in most cases pulsed fields are more active than are non-pulsed fields and that exposures within certain intensity windows have much large biological effects than do either lower or higher intensity exposures; these are both consistent with a VGCC role but inconsistent with only a heating/thermal role**. Downstream effects of VGCC activation include calcium signaling, elevated nitric oxide (NO), NO signaling, peroxynitrite, free radical formation, and oxidative stress. **Downstream effects explain repeatedly reported biological responses to non-thermal exposures: oxidative stress; single and double strand breaks in cellular DNA; cancer; male and female infertility; lowered melatonin/sleep disruption; cardiac changes including tachycardia, arrhythmia, and sudden cardiac death; diverse neuropsychiatric effects including depression; and therapeutic effects.** Non-

VGCC non-thermal mechanisms may occur, but none have been shown to have effects in mammals. Biologically relevant safety standards can be developed through studies of cell lines/cell cultures with high levels of different VGCCs, measuring their responses to different EMF exposures. The 2014 Canadian Report by a panel of experts only recognizes thermal effects regarding safety standards for non-ionizing radiation exposures. Its position is therefore contradicted by each of the observations above. The Report is assessed here in several ways including through Karl Popper's assessment of strength of evidence. Popper argues that the strongest type of evidence is evidence that falsifies a theory; second strongest is a test of "risky prediction"; the weakest confirms a prediction that the theory could be correct but in no way rules out alternative theories. All of the evidence supporting the Report's conclusion that only thermal effects need be considered are of the weakest type, confirming prediction but not ruling out alternatives. In contrast, there are thousands of studies apparently falsifying their position. The Report argues that there are no biophysically viable mechanisms for non-thermal effects (shown to be false, see above). It claims that there are many "inconsistencies" in the literature causing them to throw out large numbers of studies; however, the one area where it apparently documents this claim, that of genotoxicity, shows no inconsistencies; rather it shows that various cell types, fields and end points produce different responses, as should be expected. The Report claims that cataract formation is produced by thermal effects but ignores studies falsifying this claim and also studies showing [Ca2+]i and VGCC roles. It is time for a paradigm shift away from only thermal effects toward VGCC activation and consequent downstream effects.

Note that Dr. Pall's abstract cites that "in most cases pulsed fields are more active than are non-pulsed fields" and that the VGCCs are "sensitive to low intensity, non-thermal" microwave radiation. Smart meters have sharp emissions that are like intermittent pulses. According to Dr. Pall, emissions of this type are likely to be more biologically activating (hence inducing damage and harm) than non-pulsed ones, and even though the smart meter radiation is considered "low intensity", every one of its pulsed emissions can potentially activate VGCCs somewhere in the body and cause a cascade of downstream effects that can do real damage.

Exhibit A2-2 cites additional mechanisms by which chronic exposure to low-level microwave radiation from wireless devices, including smart meters, can cause damage to our bodies. Dr. Tania Slawecki is a materials scientist at Penn State University who uses microwaves in her research and understands how microwaves interact with matter. She is apprised of the latest science, in particular, the field of spectral chemistry, which makes use of microwaves for chemical processes. The understanding of how microwaves interact with atoms and molecules is grounded in the work of two Nobel Laureates, Charles Townes and Arthur Schawlow who discovered microwave spectroscopy.

According to Dr. Slawecki's affidavit, the microwaves can cause harm to our blood because of the magnetic field component of the microwaves which affects iron in hemoglobin. Even if there is no heating, certain atoms and molecules (e.g. polar molecules and conductive metals like iron, copper and aluminum) are being affected by myriad combinations of microwaves are entering the body. This, together with the activation of the voltage gated calcium channels can, at any time, trigger damage to cells and lead to a cascade of damage resulting in cancers or other disruptions of chemical processes. The 1200-25,000 pulse-like transmissions per day from the ITRON smart meters that Met-Ed is installing, together with the low frequency "conductive emissions" or "dirty electricity" coming from their switched mode power supply, constitute the 24/7 onslaught from smart

meters in our homes and are contributors to the chronic low level microwave "soup" to which we are exposed these days.

III c. Overview of Health Risks and Shortcomings of Safety Standards

The following excerpt is from a 90-page overview (2018) which includes smart meter technology: "5G: Great risk for EU, U.S. and International Health! Compelling Evidence for Eight Distinct Types of Great Harm Caused by Electromagnetic Field (EMF) Exposures and the Mechanism that Causes Them" While not published in a peer-reviewed journal, it is well-referenced and builds upon multiple prior publications of the author on this topic in respectable peer-reviewed journals and is therefore credible evidence.

Written and Compiled by Martin L. Pall, PhD
Professor Emeritus of Biochemistry and Basic Medical Sciences
Washington State University
Address: 638 NE 41st Ave., Portland OR 97232 USA
martin_pall@wsu.edu 503-232-3883 May 17, 2018

Summary:

We know that there is a massive literature, providing a high level of scientific certainty, for each of eight pathophysiological effects caused by non-thermal microwave frequency EMF exposures. This is shown in from 12 to 35 reviews on each specific effect, with each review listed in Chapter 1, providing a substantial body of evidence on the existence of each effect. Such EMFs:

1.Attack our nervous systems including our brains leading to widespread neurological/neuropsychiatric effects and possibly many other effects. This nervous system attack is of great concern.

2.Attack our endocrine (that is hormonal) systems. In this context, the main things that make us functionally different from single celled creatures are our nervous system and our endocrine systems – even a simple planaria worm needs both of these. Thus the consequences of the disruption of these two regulatory systems is immense, such that it is a travesty to ignore these findings.

3.Produce oxidative stress and free radical damage, which have central roles in essentially all chronic diseases.

4.Attack the DNA of our cells, producing single strand and double strand breaks in cellular DNA and oxidized bases in our cellular DNA. These in turn produce cancer and also mutations in germ line cells which produce mutations in future generations.

5.Produce elevated levels of apoptosis (programmed cell death), events especially important in causing both neurodegenerative diseases and infertility.

6.Lower male and female fertility, lower sex hormones, lower libido and increased levels of spontaneous abortion and, as already stated, attack the DNA in sperm cells.

7.Produce excessive intracellular calcium [Ca2+]i and excessive calcium signaling.

8.Attack the cells of our bodies to cause cancer. Such attacks are thought to act via 15 different mechanisms during cancer causation.

There is also a substantial literature showing that EMFs also cause other effects including life threatening cardiac effects (Chapter 3). In addition substantial evidence suggests EMF causation of very early onset dementias, including Alzheimer's, digital and other types of dementias (Chapter 3); and there is evidence that EMF exposures in utero and shortly after birth can cause ADHD and autism (Chapter 5).

Each of these effects is produced via the main mechanism of action of microwave/lower frequency EMFs, activation of voltage-gated calcium channels (VGCCs) (Chapter 2). Each of them is produced via what are called downstream effects of VGCC activation. It follows from this that we have a good understanding not only that these effects occur, but also how they can occur. The extraordinary sensitivity of the VGCC voltage sensor to the forces of the EMFs tells us that the current safety guidelines allow us to be exposed to EMF levels that are something like 7.2 million times too high. That sensitivity is predicted by the physics. Therefore, the physics and the biology are each pointing to the same mechanism of action of non-thermal EMFs.

The different effects produced are obviously very deep concerns. They become much deeper and become existential threats when one considers that several of **these effects are both cumulative and eventually irreversible.** There is substantial evidence for the cumulative nature and eventual irreversibility of the neurological/neuropsychiatric effects, of the reproductive effects, the mutational DNA effects, the cardiac effects, of some but not other of the hormonal effects (Chapter 3); any causation of ADHD and autism may add additional concerns (here the cumulative nature is probably limited to the perinatal period). When we know that sperm counts have dropped by more than 50% throughout the technologically advanced countries on earth, it is difficult to avoid the conclusion that the vast majority of the population in those countries is already substantially impacted. The same conclusion can be made based on the widespread nature of the neuropsychiatric effects in those countries. Both of those effects will get much much worse even with no increase in current exposures, due to the cumulative nature and irreversibility of these effects. I expect we will see crash in human reproduction almost to zero as happened in the Magras and Xenos mouse study which I estimate to occur within about 5 years, without any increases in our exposures. Obviously 4G and 5G will make the situation much worse. Similarly I expect that the deterioration in brain function that we are already seeing will seal our fate if we fail to act rapidly and vigorously. Our collective brain function may become completely incapable of dealing with such a mega-crisis situation.

Now it can be argued that some of these may not develop as I expect, although those expectations are based on the best available evidence. One may even be able to argue this for all of those expectations. However, when we have substantial risk of multiple existential threats to every single technologically advanced country on earth, failure to act vigorously means there is a very high probability of complete destruction of these societies. And the chaos which would inevitably ensue, in a world that still has nuclear weapons, may well lead to extinction. In the face of these types or risk, the only reasonable course is to move with great vigor to stop new exposures and lower current exposures. One can still access the internet, using wired connections. And we can lower cell phone tower and cell phone radiation substantially. **Smart meters, if needed, can work via wired connections.**

Over 60% of this document (Chapters 5 & 6), is focused on the failures of statements from SCENIHR, the telecommunications industry, the U.S. FCC and the U.S. FDA to reflect the science. Their statements repeatedly omit much, often all of the most important science. Their statements are rife not only with omissions, but also with easily demonstrable falsehoods and with false logic. These have often occurred at times where we know that they knew better. These have occurred along with vigorous efforts by the telecommunications industry to corrupt the science by attacking individual scientists whose only fault is that they have obtained important findings that the industry does not like. These attacks have occurred along with vigorous efforts to corrupt two agencies that have important regulatory roles.

There are also possible concerns about individual industry-linked research studies. All wireless communication devices put out polarized EMFs that carry information via pulsations. Both the pulsations and the polarization make these EMFs much more biologically active. There are three other factors that also influence the production of effects. Several industry-linked studies may have used these factors, along with using very tiny numbers of individual animals in their studies, to produce studies which may have been designed to fail (Chapter 5). It is not clear at this point whether this type of concern is quite limited or whether it is very broad.

The European Commission has done nothing to protect European citizens from any of these very serious health hazards and **the U.S. FDA, EPA and National Cancer Institute have done nothing to protect American citizens. The U.S. FCC has been much worse than that, acting vigorously with wanton disregard for our health.**

Dr. Pall goes on to state (p.2):

Current U.S. and International safety standards are based on the assumption that the only important thing that microwave and other low frequency EMFs can do biologically is to heat things (1-5), like heating things in a microwave oven. Based on that assumption, safety standards are based on heating (1-5) and the reasonable inference, if that assumption is correct, is that levels of exposures which only produce insignificant heating have no biological impact and therefore are "safe." In fact advocates for current standards argue that current safety standards are about 100 times more stringent than is needed, because even exposure levels 100 times higher than allowed by current safety standards produce only slight heating.

However, **over 20,000 publications in the scientific literature have reported substantial biological effects of at exposures well within safety standards, such that none of these should be possible if current safety standards are scientifically based.**

[Reference: link to the full 90-page article: https://www.wirelesseducationaction.org/wp-content/uploads/2018/07/EU-EMF2018-6-11US3A.pdf]

III d. Legal Justification of Assault

Cognizant of

a) the mechanisms by which harm can and is being done by wireless device radiation;
b) the volumes of scientific data demonstrating actual harm including at least eight ways this kind of radiation damages the body, and
c) the failure of our regulatory agencies to protect public health due to conflicts of interest with the telecommunications industry,

the Complainant elects to minimize exposure to this unnecessary and harmful pollutant in her home and life. I (the Complainant) do not own a cell phone, but for those that do, they can choose to turn them off or place them in "airplane mode" to reduce radiation exposure. Smart meters emit radiation 24/7. People in a home with a smart meter cannot effectively shield themselves from their smart meter's emission of radiation, they cannot fully distance themselves from their smart meter's radiation, and they cannot turn off the radiating feature in a smart meter. There is no longer a public place to go – even many parks have cell phone towers in them – to fully escape microwave radiation exposure which is why it is important to have a safe place to go to allow the body to recuperate in a radiation-free/wireless-free home environment. ***The home is our last refuge over which we can and should have control to minimize our exposure to known harmful pollution and toxins of which microwave radiation is one.*** I have that refuge now with my electromechanical analog meter.

III d. i. Simple Assault Defined

Pennsylvania Statutes Title 18 Pa.C.S.A. Crimes and Offenses § 2701. Simple assault states:

(a) Offense defined.-- Except as provided under section 2702 (relating to aggravated assault), a person is guilty of assault if he:

(1) attempts to cause or intentionally, knowingly or recklessly causes bodily injury to another;

[… or]

(3) attempts by physical menace to put another in fear of imminent serious bodily injury;

III d. ii. Aggravated Assault Defined

Pennsylvania Statutes Title 18 Pa.C.S.A. Crimes and Offenses § 2702. Aggravated assault states:

(a) Offense defined.—A person is guilty of aggravated assault if he:

(1) attempts to cause serious bodily injury to another, or causes such injury intentionally, knowingly or recklessly under circumstances manifesting **extreme indifference to the value of human life;**

III d. iii Assault According to Common Law

The legal definition of assault: At Common Law, an intentional act by one person that creates an apprehension in another of an imminent harmful or offensive contact.

An assault is carried out by a threat of bodily harm coupled with an apparent, present ability to cause the harm. It is both a crime and a tort and, therefore, may result in either criminal or civil liability.

As a reasonable person I believe and am aware that the peer reviewed scientific reports and studies show the biological harm caused by RF/microwave radiation emitting devises. I am aware that several mechanisms by which harm can be done have been identified and substantiated. Smart meters emit RF/microwave radiation 24/7 and **the threat and apprehension I feel at the thought of a smart meter being forced on my home meets the legal definition of simple assault as per PA Title 18 § 2701 (a) (3) and assault as per Common Law.**

Furthermore, the PA PUC and the EDCs have demonstrated extreme indifference to the value of human life when time after time the PA PUC has heard from Complainant's physicians and other experts testifying that they were being, or would be, harmed by smart meters. Reference the following docket numbers for a small sample showing the disregard to expert testimony stating that the Complainants needed to avoid RF/microwave radiation to maintain and preserve the level of health that they had:

Susan Kreider v. Peco Energy Company Docket No. C-2015-2469655 and P-20152495064

Paul v. PECO Energy Company Docket No. C-2015-2475355

McKnight v. PECO, Docket C-2017-2621057

Cynthia Randall and Paul Albrecht v. Docket No. C-2016-2537666

Catherine J. Frompovich v. PECO Energy Company C-2015-2474602

Because the PA PUC and EDC's have been well apprised of the harmful nature of the radiation from the smart meters being forced on PA customers AND have been apprised of actual harm done to a number of customers, they have caused "such injury intentionally, knowingly or recklessly under circumstances manifesting extreme indifference to the value of human life", which **meets one of the definitions for aggravated assault.**

For all of the above reasons stated, replacing my electromechanical analog meter with a wireless computer (aka smart meter) is in violation of PA PUC Code Sections 1501 and 1502 as to me and my family and would be an act of assault.

IV. REQUESTED RELIEF

Complainant respectfully requests that the Commission compel Met-Ed to abide by the requirements of Section 1501 and 1502 of the Public Utility Code and Section 57.194 of the Commission's regulations to provide and furnish and maintain adequate, efficient, safe, and reasonable service to Complainant by continuing measuring electric use with current electromechanical analog meter.

Complainant respectfully request that the Commission grant Complainant's requested relief from a device that Complainant never requested or agreed to pay for, per § 2807 (f) (2) (i) of Act 129; that is in violation of § 1501 of the Public Utility Code; and that violates a number of rights, privileges, immunities, and protections that are afforded to Complainant as a resident of Pennsylvania; and grant a Summary Judgment in Complainant's favor, and against the Defendant

Complainant respectfully requests that the Commission compel Met-Ed to make an accommodation for Complainant based on her reasonable request for accommodation, and desist from deploying or attempting to deploy any wireless equipment that has been shown to cause pathologies.

Complainant respectfully requests that the Commission compel Met-Ed to make an accommodation for Complainant based on her reasonable request for accommodation, and desist from deploying or attempting to deploy any wireless equipment on the grounds that such deployment or attempt to deploy any wireless equipment on the Complainant's home or property would be an act of assault.

Complainant respectfully requests that the Commission allow her to retain the analog meter which is proven to provide safe, reasonable service, which is the requirement of Section 1501 and 1502, taking into consideration her and her family's unique needs.

The Commission should compel Met-Ed to cease and desist from any attempts to install a wireless smart meter or other harmful equipment at Complainant's premises, as such an action is a violation of Act 129, as it was written and intended and voted on and Section 1501 of the Public Utility Code and Section 57.194 and Section 1502 of the Commission's regulations as they pertain to Complainant's right to preserve the health of Complainant and that of my family.

In the alternative, and pursuant to 52 Pa. Code § 1.91, Complainant respectfully requests that the Commission order the waiver of any rule, regulation or Commission Order that the Commission believes requires Met-Ed to deploy a wireless EMF emitting meter at the Complainant's premises.

I ask that the PUC convert this formal complaint to a petition for relief, if necessary, to provide Complainant and my family with the accommodation we require under the ADA, if the PUC finds that Met-Ed did not violate any statute or regulation, contrary to the allegations of this Amended Formal Complaint.

V. CONCLUSION

Based on the foregoing, Complainant respectfully requests that the Commission sustain her Formal Complaint and issue an Order granting the relief requested and any other remedy that the Commission deems just and appropriate.

Respectfully submitted,

Noreen McCarthy

18 Millstone Lane
Pottstown, PA 19465
610-469-2009
contactnoreen1@gmail.com

Exhibit A2-1

Act 129 of 2008
Overview and Implementation

MADRI Steering Committee Meeting
March 5, 2009

Kim Pizzingrilli, Commissioner
kpizzin@state.pa.us
717.772.0692

Shane Rooney, Counsel
srooney@state.pa.us
717.787.2871

Pennsylvania Public Utility Commission
Harrisburg, PA 17105-3265
www.puc.state.pa.us

Act 129

- Legislative History
- Implementation Schedule
- Energy Consumption Reduction Objective
- Peak Demand Reduction Objective
- Standards for Implementation
- Penalties
- Smart Metering Mandate
- Time Based Rate Mandate

Smart Metering Mandate

- All EDCs with 100,000 or more customers must file a smart metering procurement and implementation plan with the Commission by August 14, 2009.
- "Smart meter" is bidirectional and records usage at least hourly.
- At a minimum, smart meters must be provided upon customer request (if customer pays), in all new building construction in the service territory, and to all other customers within 15 years.
- EDCs may fully recover reasonable costs.
- Direct access to meters and data will be provided to third parties with customer consent.

Exhibit A2-2

AFFIDAVIT OF TANIA M. SLAWECKI, PH.D.

I, Tania M. Slawecki, being duly sworn, of sound mind, and over the age of 18 years, declare the following:

1. I am a resident of the state of Pennsylvania. I live at 244 Mary Street, Lemont, PA 16851.

2. I am a Research Associate at the Materials Research Institute at the Pennsylvania State University (Penn State), University Park, PA campus, a position I have held for 15 years. (My CV is attached.)

3. In my present capacity and for the past eight years, I have worked in the Microwave Processing and Engineering Center and use microwaves to fabricate or process materials for industrial, commercial, and military applications.

4. I understand how microwaves interact with matter. Our bodies are made out of matter. Microwaves are absorbed by and do damage to the matter in our bodies.

5. The FCC regulations for microwave radiation from simple devices such as cell phones only cover thermal (heating) effects, not the more insidious “athermal” effects which do not involve heating but, rather, changes in electrical or charge states. Such changes can have dire repercussions in living tissue over time.

6. The FCC regulations on which device manufacturers are relying for safety assurance (a) are out of date with present scientific understanding of how microwave radiation causes damage to the body, (b) do not take into consideration constant daily exposure from multiple sources as presently exists today, and (c) have resisted being changed due to conflicts of interest as it is staffed by individuals from the telecommunications industry whose profit motive has trumped public health and safety.

7. I have been harmed personally (hearing loss, tinnitus, pain) from chronic exposure to a WiFi transmitter on the ceiling of my university office which emitted (near my head) at power levels 10,000 times lower than the FCC “safety” standard.

8. I am aware of harm to others and have documented harm to one other person so far. I have learned that real harm can and is being done to all of us by the low-level microwave radiation from wireless devices whether or not we recognize the cause of our symptoms.

9. I have scrutinized and concur with the voluminous data in the science literature that reveals biological harm from chronic exposure to low-level microwaves from wireless devices.

10. My research experience with microwaves allows me to view the science literature with a unique perspective, and the controversy over health effects mainly arises

because many experiments are not conducted properly. For example, some of those that show “no effect” from exposure to low-level microwaves from cell phones, WiFi or smart meters were not conducted over a long enough period of time and/or with “real” signals from ACTUAL devices. I can offer more critical and comprehensive analysis upon request.

11. Public exposure to low-level microwave radiation has reached a critical threshold resulting in adverse effects to public health: the epidemic of atrial fibrillation is one such example. It is well-documented that activation of voltage-gated calcium channels by ambient microwaves from wireless devices stimulates inappropriate release of calcium ions, and this can induce heart arrhythmias and/or atrial fibrillation that is not “fixed” by catheter ablation procedures nor by proper nutritional remineralization.

12. The very young and older populations are most susceptible to damage, and this can be readily observed in changes to red blood cells upon exposure to microwave signals from devices. Upon exposure to wireless device radiation, these cells can exhibit signs of oxidative stress or “rouleaux” formations in which the cells stick together and can cause strokes.

13. We all need the TIME and A PLACE to recover from exposure damage. Our homes should be a refuge from wireless signals if we so choose, which is why smart meter technology – presently in its infancy – is so harmful to us. The smart electric meters will be followed by smart meters on water and gas utilities, while implementation of “smart appliances” will activate the Zigbee antenna in the smart electric meters to add still more microwave signals to the constant spray of microwaves and radio frequencies in the home and neighborhood.

14. We can turn off our cell phones and WiFi but we cannot turn off our smart meters. The sharp signals from these devices are like knife stabs to our bodies while the “conductive emissions” or “dirty electricity” they generate by virtue of their switched mode power supplies bathes our homes 24/7 in low frequency (kilohertz) radiation known to interfere with molecular signaling in the body and further erode health. Over time, wireless smart meter radiation – together with our other chronic exposures – can and will erode our health just as chronic exposure to second hand smoke and other pollutants take their toll.

15. It is my professional opinion that we must protect our rights to a home and neighborhood environment free of emissions from smart meters and 5th Generation cellular technology (5G), as the present radio waves, cell phones and WiFi emanations are enough for our bodies to have to contend with. Such protection will limit further damage to public health which is vital also to stemming the tide of rising health care costs.

16. It is also my professional opinion based on my previous experiences as director of Penn State’s Center for Sustainability and eight years teaching courses in ecological

sustainability and green design, that smart meter technology is more damaging to the environment than the long-lived, robust electromechanical analog meters they replaced.

17. In addition to their hazardous radiation emissions, the smart meters are short-lived (5-7 years), require energy to operate (which generates more greenhouse gas emissions), and unnecessarily generate hazardous electronic waste while failing to improve the grid infrastructure or reduce residential power usage. From an ecological and full-cost energetic standpoint, "smart meters" are not "smart" at all.

18. There is a general perception that the energy from low-level microwaves is too weak to cause bodily harm. The following additional points clarify "How can low-energy radiation like microwaves cause harm?"

19. Emeritus Professor Martin Pall (Washington State U.) has made certain one of the ways wireless device radiation causes harm. Voltage-gated calcium channels in our bodies get activated by low-level intensity microwave radiation. This can cause:

- headaches & dizziness
- insomnia
- tinnitus & hearing loss
- fatigue
- memory and concentration problems
- anxiety / depression
- neuropsychiatric disorders
- heart arrhythmias
- worsening of diabetes
- & more, including cancer.

20. Microwaves are "electromagnetic radiation" just like sunlight and x-rays, which means they consist of an oscillating electric field (the "electro" part) and an oscillating magnetic field (the "magnetic" part). The electric field part of a microwave interacts with polar molecules like water and alcohol in the body, while the magnetic field part interacts with conductive metals in the body including iron (found in the hemoglobin in our blood), copper and aluminum.

21. There is a patented* field called "spectral chemistry" (based in part on the microwave spectroscopy discoveries of Nobel Laureates Townes and Schawlow) which makes use of what is called "fine structure" in atoms and molecules. These structures are receptive to microwave radiation – whether coherent (like lasers) or incoherent (like ambient levels around us) - and it explains why microwaves can change the charge states of atoms and molecules in the body which creates what we call "athermal" effects … effects *without heating*. When these charge states are altered, normal biochemical processes are disrupted or altered which can, over time and repeated exposure, result in damage. [*Reference: U.S. Patent 8262868 (2012)]

22. In spectral chemistry, it is recognized that <u>one oscillation</u> of a **microwave** (non-ionizing radiation) **has the same energy as** <u>one oscillation</u> of an **x-ray** (ionizing

radiation). There are a lot more oscillations PER SECOND in an x-ray than in a microwave, which is why an x-ray does damage so quickly ... but microwaves are still dangerous, even at low levels, if you ***give them enough time***.

23. Radiation safety teaches: minimize exposure TIME, increase DISTANCE from and utilize SHIELDING between you and the radiation source. Ionizing radiation damages very quickly, but with non-ionizing radiation, it just takes a lot longer to increase the statistical probability of damage. In today's world, we're increasingly sitting ducks in these radiation fields, giving them ample time to do damage ***absent the above mentioned radiation safety measures***.

24. With our WiFi, Bluetooth devices, baby monitors, cell phones, cordless phones, smart meters, exercise watches and other wireless devices, we are awash daily in a sea of microwaves of many different frequencies. The principle of "heterodyning" (in spectral chemistry) teaches that every combination (additive and subtractive) of these microwave frequencies is received by and potentially activates matter in our bodies, ***thereby increasing the statistical probability of damage many-fold.***

25. Once you understand how microwaves interact with matter, you understand better the mechanisms by which biological harm to humans and the environment can and does occur. ***We are ALL being damaged by the low-level microwaves from wireless devices***. It is one more pollutant in our very polluted world.

26. Based on the above scientific underpinnings of how microwaves cause biological damage, and based on the large body of scientific data demonstrating harm from chronic exposure to low-level radiation from wireless devices, it is my professional opinion that we must *restore and preserve our right to limit our exposure to this pollutant in our homes and neighborhoods by removing wireless smart meters and prohibiting the implementation of "5G" (5th Generation cellular network technology).*

I declare under penalty of perjury that the foregoing is true and correct.

Executed on date: 27 July 2019

Tania M. Slawecki, Ph.D.
244 Mary Street, Lemont, PA 16851
814-234-0836 / tms9@psu.edu

State of Pennsylvania
County of Centre

Sworn to and subscribed before me this 27th day of July 2019

Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Alexa M. Geiswhite, Notary Public
College Twp., Centre County
My Commission Expires April 19, 2021
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

TANIA M. SLAWECKI

The Pennsylvania State University
108 Materials Research Laboratory
University Park, PA 16802
Phone: 814-865-0265, **Email:** tms9@psu.edu

Education

1987 B.A. Astronomy/Physics (minor: Philosophy), Lycoming College, Williamsport, PA
1989 M.S. Physics: Low Temperature Acoustics, Penn State University, University Park, PA
1995 Ph.D. Materials Science & Engineering: Polymer Physics, Penn State University

Professional Experience

2010 - **Research Associate, Microwave Processing & Engineering Center, Materials Research Institute, Penn State University**
Conduct proprietary research for industry and government agencies to fabricate new materials or improve on conventionally processed ones using microwave processing, an ecologically sensible, energy-saving manufacturing method. In charge of laboratory safety and equipment maintenance, trouble-shooting and repair; assist students with microwave-related projects that utilize our facilities; gradually preparing manuals for our custom designed microwave furnaces ranging from 1.5 kW to 6 kW powered systems, including multi-mode and single-mode microwave cavities and 915 MHz, 2.45 GHz and 5.8 GHz systems. Use materials characterization tools, most often x-ray diffraction and scanning electron microscopy, to evaluate microwave fabricated materials. Materials include powdered metals, ceramics, alloys and polymers with special studies that involve evaluating properties of materials in pure electric or magnetic field components of the microwave to help us understand what part of the microwave field is most influential on outcome. Prepare detailed reports on findings.

2006 - 2010 **Research Associate, Materials Research Institute at Penn State**. With Prof. Rustum Roy, utilized materials characterization tools to investigate various radiation fields and their effects on physical matter, especially water; large focus on structure of water and investigating ultradilute colloidal solutions and waters having unique properties. Used materials characterization tools including Raman, infrared, and UV-Vis spectroscopies, surface tension and zeta potential measurements, Gas Discharge Visualization (GDV), and numerous others as relevant to the situation.

2004 – 2006 **Co-PI, Bios-Materials Research Initiative, Materials Research Lab, Penn State**
With Prof. Rustum Roy, obtained seed grant funding to explore phenomena at the interface between materials science and living systems with a strong focus on evaluating unconventional electromagnetic therapeutic devices.

2001 - 2004 **Director, The Center for Sustainability, College of Engineering, Penn State**. Oversaw the establishment of 8.5-acre demonstration site for ecological technologies; instructed and supervised students in hands-on projects including developing a biointensive mini-farm, design and construction of small structures using recycled materials and earthen architecture; small passive and active solar projects including a 1.5 kW PV array; wind-power project; a small constructed wetlands; various "living machine" models for water treatment; and PI on the Growing Greener grant funded Penn State Living Machine Project for ecological wastewater treatment. Administrative and financial responsibilities.

2000 - 2006 **Assistant Professor, Science, Technology and Society Program, Penn State** …an interdisciplinary program in the College of Engineering. Developed and taught 400-level courses "Projects in Sustainable Living", "Living Machines: From Conception to Construction", "Green Design and Technologies", and the 200-level "Integrative Medicine and Society". Developed, secured grant funding for and co-taught a pilot course on "Integrated Systems and LEED Certification" for senior engineering and design students at Penn State University, working in collaboration with the U.S. Green Building Council.

1998 - 2000 **Research Associate, The Center for Sustainability** at Penn State University and in the Science, Technology and Society Program at Penn State. Assisted with development and implementation of the first "Projects in Sustainable Living" hands-on learning course, supervised student projects and oversaw the development plans and implementation of the first 7-acre demonstration site provided to the Center for Sustainability which entailed working with university administrators and local code officials.

1995 – 1998 **Physical Scientist, National Institute of Standards and Technology, Gaithersburgh, MD** Responsible for assisting guest researchers to conduct experiments on the two Small Angle Neutron Scattering (SANS) beam lines in the Reactor Radiation Division. Responsible for ensuring guest researchers followed radiation and laboratory safety regulations. Reviewed and helped to score applications submitted for beam line use. Primarily in charge of the shear cell apparatus used on the beam line in addition to other standard configurations.

1989-1995 **Research Assistant**, **Department of Materials Science**, Penn State University

1987-1989 **Research Assistant**, **Department of Physics**, Penn State University

Membership/Professional Organizations

2001 - 2004 Pennsylvania Partners in Agriculture, Health, Education and the Environment
1992 - The Pennsylvania Association for Sustainable Agriculture

Honors

1986	National Society of Physics Students Scholarship
1987	Class Valedictorian
1995	Hoechst-Celanese award for excellence in Polymer Science
2015	Honorary Lifetime Membership, PA Association for Sustainable Agriculture

Publications:

1. McKenna J, Slawecki TM, Maynard JD. (1990) Second and fourth sound modes for superfluid helium in aerogel. *Physica B: Cond. Matt.*. 165-166(part1): 581-582

2. McKenna J, Slawecki TM, Maynard JD. (1991) Observation of a second-sound-like mode in superfluid-filled Aerogel. *Phys. Rev. Lett*. 66: 1878-1881

3. McKenna J, Slawecki TM, Maynard JD. (1991) Observation of a second-sound-like mode in superfluid-filled Aerogel. *J. Acoust. Soc. Am.* 89: 2007

4. Butler PD, Hamilton WA, Magid LJ, Hayter JB, Slawecki TM, Hammouda B. (1996) Use of complementary neutron scattering techniques in studying the effect of a solid/liquid interface on bulk solution structures. *Faraday Discuss.* 104: 65 – 78

5. Butler PD, Hamilton WA, Magid LJ, Slawecki TM, Han Z, Hayter JB. (1997) Effect of a solid/liquid interface on bulk solution structures under flow. *Physica B: Cond. Matt*. 241-243: 1074-1076.

6. Straty GC, Muzny CD, Butler BD, Lin MY, Slawecki TM, Glinka CJ, Hanley HJM. (1997) An in-situ rheometric shearing apparatus for SANS. *Physica B: Cond. Matt*. 241-243: 74-76.

7. Slawecki TM, Glinka CJ, Hammouda B. (1998) Shear-induced micellar crystal structures in an aqueous triblock copolymer solution. *Phys. Rev. E*. 58: R4048.

8. Karim A, Slawecki TM, Kumar SK, Douglas JF, Satija SK, Han CC, Russell TP, Liu Y, Overney R, Sololov J, Rafailovich MH. (1998) Phase Separation-Induced Surface Patterns in Thin Polymer Blend Films. *Macromolecules* 31(3): 857-862.

9. Ruzette, A-VG, Banerjee P, Mayes AM, Pollard M, Russell TP, Jerome R, Slawecki T, Hjelm R, Thivagaraian P. (1998) Phase Behavior of Diblock Copolymers between Styrene and n-Alkyl Methacrylates. *Macromolecules* 31(24): 8509-8516

10. Edler KJ, Reynolds PA, Brown AS, Slawecki TM, White JW. (1998) Shear and salt effects on the structure of MCM-41 synthesis gels. *J. Chem. Soc., Faraday Trans*. 94:1287-1291

11. Roy R, Hoover MR, Bhalla AS, Slawecki T, Dey S, Cao W, Li J, Bhaskar S. (2007) Ultradilute Ag-aquasols with extraordinary bactericidal properties: the role of the system Ag-O-H2O. *Mat. Res. Innov.* 11: 3-18.

12. Cornwell J, Roy R, Cross LE, Slawecki T, Rao ML. (2009) Surprising observations on phenomena created from modified 2.45 GHz source. *Mat. Res. Innov*. 13(1): 11-14.

13. Zhang, Y., Huang K., Agrawal, D.K., Slawecki, T., Zhu, H., Yang, Y. (2017) Microwave Power System Based on a Combination of Two Magnetrons. *IEEE Trans Electron Dev.* 64(10): 4272-4211.

14. Zhang, Y., Agrawal, D.K., Cheng, J., Slawecki, T, (2018) Microwave Power Absorption Mechanism in Powdered Metals. *IEEE Trans Microwave Theory & Tech*. 66(5): 2107-2115

1.36 Verification

Verification

I, Noreen McCarthy, hereby state that the facts above set forth are true (or are true and correct to the best of my knowledge, information and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. section 4904 (relating to unsworn falsification to authorities.

August 21, 2019	Noreen McCarthy
Date	Signature