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September 17, 2018

***VIA ELECTRONIC FILING***

Rosemary Chiavetta, Secretary  
Pennsylvania Public Utility Commission  
Commonwealth Keystone Building  
400 North Street, 2nd Floor North  
P.O. Box 3265  
Harrisburg, PA 17105-3265

**Re: Alan V. Schmukler v. PPL Electric Utilities Corporation**  
**Docket No. C-2017-2621285**

Dear Secretary Chiavetta:

Enclosed for filing are the Replies of PPL Electric Utilities Corporation to the Exceptions of Alan V. Schmukler in the above-referenced proceeding. Copies will be provided as indicated on the Certificate of Service.

Respectfully submitted,



Devin Ryan

DTR/jl  
Enclosures

cc: Honorable Elizabeth Barnes  
Certificate of Service  
Office of Special Assistants (*via e-mail*)

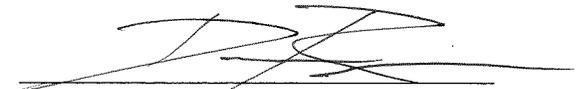
**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

**VIA E-MAIL & FIRST CLASS MAIL**

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Date: September 17, 2018



Devin T. Ryan

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Alan V. Schmukler,	:	
	:	
Complainant,	:	
	:	
v.	:	Docket No. C-2017-2621285
	:	
PPL Electric Utilities Corporation,	:	
	:	
Respondent.	:	

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**REPLIES OF PPL ELECTRIC UTILITIES CORPORATION TO THE  
EXCEPTIONS OF ALAN V. SCHMUKLER**

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Date: September 17, 2018

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## **I. INTRODUCTION**

PPL Electric Utilities Corporation (“PPL Electric” or the “Company”), pursuant to 52 Pa. Code § 5.535, hereby respectfully submits these Replies to the Exceptions of Alan V. Schmukler (“Complainant”). In the Initial Decision (“ID”), Administrative Law Judge Elizabeth H. Barnes (the “ALJ”) dismissed the Complainant’s Formal Complaint challenging the Company’s installation of new advanced metering infrastructure (“AMI”) meters at his premises and his neighbor’s property. The ALJ correctly held that the Complainant failed to prove by a preponderance of evidence that the installation of the AMI meter constitutes unsafe or unreasonable service under 66 Pa. C.S. § 1501.

On August 28, 2018, the Complainant filed Exceptions to the ID.

On September 5, 2018, PPL Electric filed limited Exceptions to the ID, regarding the fire safety recommendations made by the ID.

As explained herein, the Complainant’s Exceptions are without merit and should be denied. Accordingly, the Company respectfully requests that the Pennsylvania Public Utility Commission (“Commission”) deny the Complainant’s Exceptions and adopt the ID as modified consistent with PPL Electric’s limited Exceptions.

## **II. REPLIES TO EXCEPTIONS**

### **A. REPLY TO EXCEPTION NO. 1 – THE ALJ CORRECTLY CONCLUDED THAT ELECTROMAGNETIC HYPERSENSITIVITY (EHS) IS NOT A MEDICAL DIAGNOSIS THAT IS WIDELY ACCEPTED AMONG MEDICAL PRACTITIONERS**

The Complainant contends that the ALJ erred in relying on the expert medical testimony of Dr. Mark Israel in concluding that electromagnetic hypersensitivity (“EHS”) is not a medical diagnosis that is widely accepted among medical practitioners. (Exceptions at 4-5) The Complainant alleges that Dr. Israel “has no qualifications to give expert testimony” on EHS,

based on testimony he gave in *Povacz v. PECO Energy Company*, at Docket No. C-2015-2475023. (Exceptions at 5) (citing Complainant's RB at 21-23) Further, the Complainant avers that he "presented 149 pages of studies, articles and other evidence" in his Main Brief that contradict Dr. Israel's analysis. (Exceptions at 5) (citing Complainant's MB at 71-220) These arguments are entirely without merit.

First, Dr. Israel is an eminent physician and medical researcher and was exceptionally qualified to testify on the medical issues in this case. (PPL MB at 19-25) Dr. Israel is board certified and licensed to practice medicine; over the course of his distinguished career, he trained and directed research at the National Institutes of Health, led research laboratories at prominent universities, and directed a major public health care facility. (PPL MB at 19-20) He is a professor at Dartmouth Medical School and the Executive Director of the Israel Cancer Research Fund in New York. (PPL MB at 19) He has conducted medical research for 40 years in a wide variety of areas and has published over 245 medical research studies in leading peer-reviewed scientific journals. (PPL MB at 20) Based on his extensive medical education, training, and experience, Dr. Israel was certified as an expert in medicine and medical research, in particular as related to radiofrequency ("RF") fields and health. (Tr. 289-90) Notably, the Complainant did not object to Dr. Israel being certified as an expert. (Tr. 289-90)

Dr. Israel reviewed the published scientific research on EHS from the perspective of a medical doctor. (PPL MB at 21-25) He was the only medical doctor to provide expert testimony in this case. Dr. Israel testified that claimed symptoms related to EHS are more accurately described as "Idiopathic Environmental Intolerance" ("IEI"), in which "idiopathic" means "cause unknown," rather than electromagnetic hypersensitivity. (PPL MB at 21) This is consistent with a recommendation from the World Health Organization ("WHO"). (PPL St. No. 2, p. 8) Dr.

Israel evaluated the scientific research on IEI and found that “[r]eliable studies dating back to at least 2002 and also recent reviews of the studies by experts and reviews by expert panels of public health authorities have found IEI and the variety of symptoms attributed to it are not caused by exposure to RF fields.” (PPL MB at 22) For example, a systematic review of 46 studies involving 1,175 individuals who claimed IEI symptoms found that people claiming IEI symptoms from RF fields could not replicate the claimed effect under controlled laboratory conditions. (PPL MB at 22) In addition, Dr. Israel testified that the research on IEI has been evaluated by credible public health entities and expert groups, which have concluded there is no reliable scientific evidence that exposure to RF fields causes claimed IEI symptoms. (PPL MB at 22-23) Indeed, the WHO has found that “There is little scientific evidence to support the idea of electromagnetic hypersensitivity.” (PPL MB at 23) These findings from public health entities and expert panels show that the theory of IEI caused by exposure to RF fields has not been generally accepted in the medical community. (PPL MB at 23) Therefore, Dr. Israel was more than qualified to testify as to whether EHS is a medical diagnosis that is widely accepted in the medical community, and he correctly found that it is not.

Second, in his Exceptions, the Complainant once again relies on materials that were properly stricken by the ALJ. The testimony of Dr. Israel in the *Povacz* decision was extra-record evidence presented for the first time in the Complainant’s Reply Brief. (PPL Motion to Strike ¶ 7(m)) The Complainant omits that this information was stricken by the ALJ. (ID at 18) Therefore, the Commission should disregard that extra-record evidence,

Third, the Complainant points to the “149 pages” in his Main Brief that allegedly contradict Dr. Israel’s conclusion. (Exceptions at 5) However, the ALJ correctly disregarded the Complainant’s evidence because it lacked scientific and evidentiary merit (PPL MB at 29-33)

and/or was presented for the first time at the briefing stage. (PPL Motion to Strike ¶ 7; PPL RB, Appx. A; ID at 18) Such unreliable and extra-record evidence was greatly outweighed by the credible and detailed expert testimony provided by PPL Electric. (PPL St. No. 2)

For these reasons, the Complainant's Exception No. 1 should be rejected.

**B. REPLY TO EXCEPTION NO. 2 – THE ALJ PROPERLY RELIED ON THE FEDERAL COMMUNICATIONS COMMISSION'S (FCC) RF EXPOSURE SAFETY LIMITS**

The Complainant claims that the ALJ erred in relying on the Federal Communications Commission's ("FCC") exposure safety limits. (Exceptions at 5-6) Although he does not dispute that the RF fields from the new AMI meters are 98,000 times lower than the FCC's standard, the Complainant contends that: (1) the FCC's standard is outdated; (2) the U.S. Environmental Protection Agency ("EPA") issued a letter stating that the standard does not protect against prolonged and non-thermal exposures; and (3) the FCC is a "captured agency." (Exceptions at 6) The Complainant's arguments wholly lack merit.

First, the FCC's standard is not outdated. The FCC safe public exposure limits are based on evaluations of the body of scientific research on RF fields and were adopted in consultation with other federal agencies, including the Food and Drug Administration ("FDA") and the EPA. (PPL MB at 17) Importantly, "[t]he FCC continues to consider whether there are adverse biological effects from non-thermal RF exposure levels." (PPL St. No. 1, p. 9) Therefore, the FCC's safe public exposure levels for RF fields from devices that transmit RF signals, such as the AMI meters, are still valid and applicable. (PPL MB at 17)

Second, the EPA letter cited by the Complainant was presented for the first time at the briefing stage. (See PPL RB at 5, PPL RB Appx. A, pp. 68-70; PPL Motion to Strike ¶ 7(g)) Likewise, the Complainant's allegation that the FCC is a "captured agency" is based on an article that he presented for the first time in his briefs. (See PPL RB at 5; PPL RB, Appx. A, pp. 65-67;

PPL Motion to Strike ¶ 7(g)) The ALJ properly struck these materials because they were extra-record evidence. (ID at 18) Therefore, the Commission should disregard these materials and any arguments based on them.

Based on the foregoing, the Complainant's Exception No. 2 should be denied.

**C. REPLY TO EXCEPTION NO. 3 – THE ALJ CORRECTLY FOUND THAT THE AMI METERS' RF SIGNALS ARE OF VERY SHORT DURATION AND OCCUR ONLY FOR A TOTAL OF 84 SECONDS PER DAY**

The Complainant contests the ALJ's finding that the AMI meter's RF signals are of very short duration and only occur for a total of 84 seconds over a 24-hour period. (Exceptions at 6-7) Although he does not dispute that the signals total 84 seconds, the Complainant alleges that the ALJ erred in not mentioning the number of transmissions per day, as claimed by him and his witness, Mr. Bathgate. (Exceptions at 6-7)

The Complainant's Exception is inconsequential. The record clearly demonstrates that the AMI meter's RF signals are of very short duration and occur only for a total of 84 seconds per day. Dr. Davis explicitly stated in his direct testimony, "The total daily time of RF signaling from the AMI meters used by PPL Electric is 84 seconds over the course of 24 hours, with individual signal durations of only 46 to 63 milliseconds." (PPL St. No. 1, p. 7) (emphasis added) This equates to about 1,720 transmissions per day. (Tr. 262) Dr. Davis's expert testimony on this point was not contradicted by any other expert testimony.

For these reasons, the Complainant's Exception No. 3 should be denied.

**D. REPLY TO EXCEPTION NO. 4 – THE ALJ PROPERLY FOUND THAT THE BACKGROUND LEVEL OF RF FIELDS AT THE COMPLAINANT'S RESIDENCE ARE 16.7 TIMES HIGHER THAN THE RF FIELDS FROM THE NEW AMI METER**

The Complainant disputes the ALJ's conclusion that the eight television broadcast towers within a 50-mile radius of the Complainant's location produce background RF fields that are

16.7 times higher than the RF signals from the AMI meter. (Exceptions at 7) The Complainant claims that Dr. Davis “never made any actual measurements of RF radiation” at his premises and only “surmised it from calculations.” (Exceptions at 7) This argument is without merit.

Dr. Davis explained that he conducted his calculations “based on a very fundamental physics principle, which is called the inverse square law.” (Tr. 272) This enabled him to “calculate how the field propagates from a transmitter and how it falls off in amplitude as it moves further away.” (Tr. 272) Accordingly, “[b]ased on the locations of these towers and their power outputs,” he was able to calculate “the level of RF fields that these facilities use to transmit UHF TV signals to Leola and which therefore exist as background levels of RF fields in Leola.” (PPL St. No. 1, p. 13) Therefore, as he explained to the Complainant, Dr. Davis did not need to take measurements at the Complainant’s premises to determine the background level of RF fields from the television broadcast towers. (Tr. 272) Dr. Davis’s expert testimony on this point was not contradicted by any other expert testimony.

Thus, the Complainant’s Exception No. 4 should be denied.

**E. REPLY TO EXCEPTION NO. 5 – THE ALJ CORRECTLY HELD THAT RF EXPOSURE FROM A CELL PHONE USED AT A PERSON’S HEAD IS 260,000 TIMES HIGHER THAN THE AVERAGE RF LEVELS ONE METER AWAY FROM THE NEW AMI METER**

The Complainant disputes the ALJ’s finding that the RF exposure from a cell phone used at a person’s head is 260,000 times higher than the average RF levels one meter away from the new AMI meter. (Exceptions at 8) The Complainant contends that the ALJ’s conclusion has no “basis in fact,” and he points to an article by Daniel Hirsch (Complainant’s Exhibit 15) that alleges that “smart meters expose people to between 50-160 times the radiation of a cell phone.” (Exceptions at 8) The Complainant also alleges that the new AMI meter “emits radiation day and night, 24/7.” (Exceptions at 8) The Complainant’s Exception is without merit.

First, the ALJ's finding is fully supported by the record. PPL Electric's expert witness, Dr. Davis, calculated the levels of RF field exposures from the new AMI meter and a number of sources to which people are commonly exposed. (PPL St. No. 1, pp. 12-13; PPL Electric Exh. CD4) As Dr. Davis explained, "Exhibit CD4 shows that the RF fields 30 feet away from a person using a cell phone are 3 times larger than the RF fields from the AMI meters" and that "the RF fields from using cell phones near the head can be over 260,000 times higher than the RF fields from the AMI meters." (PPL St. No. 1, pp. 12-13) Dr. Davis's expert testimony on this point was not contradicted by any other expert testimony.

Second, the ALJ properly gave little or no weight to Complainant's Exhibit 15. (ID at 24) The Hirsch document is unreliable and uncorroborated hearsay. (ID at 24-25) Further, Complainant's Exhibit 15 is "not a peer-reviewed scientific study," is "not even a complete copy of the Hirsch document," and "does not provide data to substantiate the highly inaccurate overestimation of RF exposures from a smart meter (an overestimation by multiple thousands of times)." (PPL St. No. 1, p. 11) Moreover, the Complainant tried to introduce additional portions of the Hirsch document for the first time at the briefing stage. (PPL RB at 8; PPL Motion to Strike ¶ 7(o)) The ALJ properly disregarded this extra-record evidence. (ID at 18)

Third, the Complainant incorrectly states that the AMI meters constantly expose persons to RF fields. Dr. Davis testified that "[t]he RF exposure from the AMI meter being used by PPL Electric is of very short duration (a total of 84 seconds over 24 hours) and not a constant exposure." (PPL St. No. 1, p. 11)

For these reasons, the Complainant's Exception No. 5 should be denied.

**F. REPLIES TO EXCEPTIONS NOS. 6 AND 14 – THE ALJ PROPERLY CONCLUDED THAT THE NEW AMI METER DOES NOT PRODUCE TRANSIENTS ON HOUSEHOLD WIRING**

The Complainant contests the ALJ's finding that the new AMI meter does not generate, electrical power, does not produce additional harmonics over and above what is already coming into the meter, and does not interfere with the operation of house wiring. (Exceptions at 8-9, 19-20) In alleged support, the Complainant cites the testimony of his witness, Mr. Bathgate, that the AMI meters produce "transients on the house wiring." (Exceptions at 9) The Complainant also references Mr. Bathgate's "oscilloscope pictures showing the transients on the line" and claims that Mr. Bathgate clarified that he conducted his tests both with and without appliances turned on in his house. (Exceptions at 9, 19-20) The Complainant's arguments are without merit.

First, the ALJ's conclusion is fully supported by the expert testimony of Dr. Davis, who explained that "[t]he AMI meter being used by PPL Electric does not generate electrical power, does not produce additional harmonics over and above what is already coming into the meter, and does not interfere with the operation of house wiring." (PPL St. No. 1, p. 11) Indeed, "[t]he very low amplitude RF signals generated by the power supplies in modern electronics are largely filtered out and are heavily attenuated by resistance when they try to travel along house wiring." (PPL St. No. 1, p. 11) Accordingly, when RF signals are transmitted for cable television, coaxial cables are used instead of house wiring. (PPL St. No. 1, pp. 11-12)

Second, the ALJ properly found Mr. Bathgate's testimony was based on incorrect assumptions and was unreliable. (ID at 29) Mr. Bathgate lacked fundamental knowledge about RF fields. (ID at 28-29) Moreover, Mr. Bathgate performed his voltage transient calculations using a different meter and never established that he would get the same results from PPL Electric's AMI meter. (ID at 29) He also conducted his measurements when his meter had the ZigBee radio inside of it turned on, which would attempt to connect with smart appliances and, therefore, would produce additional signals. (ID at 29) However, the ZigBee radios in the

Company's meters are turned off until a customer request it to be activated. (ID at 29) Thus, the ALJ properly disregarded Mr. Bathgate's testimony.

Based on the foregoing, the Complainant's Exceptions Nos. 6 and 14 should be denied.

**G. REPLIES TO EXCEPTIONS NOS. 7 AND 9 – THE ALJ CORRECTLY REJECTED THE COMPLAINANT'S EXHIBITS AND EXTRA-RECORD EVIDENCE ON THE ALLEGED HEALTH EFFECTS CAUSED BY RF FIELDS**

The Complainant argues that the ALJ erred in finding that his exhibits are not actual scientific studies and were mostly taken from activist websites. (Exceptions at 9-10) The Complainant alleges that he referenced studies that were available using internet links. (Exceptions at 9) Further, he disputes the ALJ's decision to strike certain of his exhibits, specifically Complainant's Exhibits 4, 9, 11, and 19. (Exceptions at 11-13; *see* Tr. 128-29, 151-54, 157-61, 178-79) Even though they were hearsay, incomplete, or both, the Complainant avers that the ALJ should have considered the exhibits when he reintroduced them in his briefs. (Exceptions at 11-13) Further, he challenges the ALJ's exclusion of evidence he presented for the first time at the briefing stage, such as evidence related to the draft, unpublished National Toxicology Program ("NTP") study, a study conducted by the Ramazzini Institute, studies concerning RF fields and insomnia, sleep, and melatonin levels, and the *National Magazine* article. (Exceptions at 10-13) The Complainant also claims that the ALJ should not have ignored the BioInitiative Report. (Exceptions at 10) All of these arguments are without merit.

First, Dr. Israel explained that none of Complainant's exhibits are actual scientific studies and most appeared to be taken from activist websites. (PPL MB at 24) He testified that these exhibits lack scientific objectivity, do not offer a balanced assessment of the scientific research on RF fields, and do not provide scientifically reliable or useful data for reaching conclusions about RF fields and the causation of any symptom or health effect. (PPL MB at 24) As a

medical doctor and scientific researcher, Dr. Israel would not rely on any of the documents. (PPL MB at 24) Dr. Davis's expert testimony on these points was not contradicted by any other expert testimony. Therefore, the ALJ's finding is supported by the record.

Second, the ALJ correctly struck Complainant's Exhibits 4, 9, 11, and 19 and rejected the Complainant's attempt to reintroduce these exhibits in his briefs. (Tr. 128-29, 151-54, 157-61, 178-79) These documents were correctly excluded because they were uncorroborated hearsay, incomplete copies, or both. (*Id.*) For the first time in his briefs, the Complainant attempted to reintroduce the exhibits and rehabilitate their faults. However, it is well-established that parties cannot present new evidence at the briefing stage or cite stricken testimony and exhibits. (PPL RB at 9) All of these exhibits were stricken before the Company presented its case in rebuttal. (PPL RB at 9) Therefore, it would violate PPL Electric's due process for any of the exhibits to be the basis for any findings of fact. (PPL RB at 9)

Third, the ALJ properly excluded the extra-record evidence that the Complainant presented for the first time in his briefs, such as the NTP study, the Ramazzini study, and the *National Magazine* article. (PPL RB at 5-8; PPL Motion to Strike ¶ 7; ID at 18) By waiting until the briefing stage to present any new materials, the Complainant denied PPL Electric an opportunity to review and inspect those materials, to cross-examine the Complainant or other witnesses about them, and to present evidence in rebuttal. (PPL RB at 10) Therefore, it would have violated PPL Electric's due process rights for the ALJ to base any findings of fact on the Complainant's extra-record evidence. (PPL RB at 10)

Fourth, the ALJ correctly ignored the BioInitiative Report because it is an advocacy document, is not a scientific study, and has been widely criticized for its lack of scientific objectivity and reliability, as addressed in Dr. Israel's direct testimony in this case. (PPL St. No.

2, pp. 19-20) As a medical doctor and medical researcher, Dr. Israel would not rely on this document to reach a medical conclusion about RF fields and health. (PPL St. No. 2, p. 20)

For these reasons, the Complainant's Exceptions Nos. 7 and 9 should be denied.

**H. REPLY TO EXCEPTION NO. 8 – THE ALJ PROPERLY FOUND THAT THERE IS NO RELIABLE MEDICAL BASIS TO CONCLUDE THAT RF FIELDS FROM THE AMI METERS WILL CAUSE OR CONTRIBUTE TO ILLNESS OR DISEASE**

The Complainant contests the ALJ's finding that there is no reliable medical basis to conclude that RF fields from the new AMI meters will cause or contribute to the development of illness or disease. (Exceptions at 11) As his sole support, the Complainant cites the studies referenced in Exception No. 7 that were presented for the first time in his briefs and claims that these studies "show that RF fields . . . can cause or contribute to illness." (Exceptions at 11) The Complainant's Exception is without merit.

First, as explained above, the studies referenced by the Complainant were properly excluded by the ALJ because they are extra-record evidence.

Second, the ALJ's finding was fully supported by the medical expert testimony of Dr. Israel. (PPL MB at 21-24) Dr. Israel was the only medical expert who presented expert testimony in this case. As explained in Section II.A., *supra*, Dr. Israel conducted a thorough analysis the scientific research on the impact of RF fields on IEI, insomnia, and adverse health effects generally. (PPL MB at 22) Regarding IEI, Dr. Israel found that "[r]eliable studies dating back to at least 2002 and also recent reviews of the studies by experts and reviews by expert panels of public health authorities have found IEI and the variety of symptoms attributed to it are not caused by exposure to RF fields." (PPL MB at 22) In fact, a recent study found that people who claimed IEI symptoms from RF fields reported lower levels of well-being when they knew they were exposed to RF fields, but when they did not know if they were being exposed, their

reports of symptoms were not associated with RF fields. (PPL MB at 22) That study concluded that it is those individuals' belief that exposure to RF fields will cause harm, rather than actual RF exposure itself, that results in the presence of their symptoms. (PPL MB at 22)

Dr. Israel also evaluated whether there is a credible scientific basis for Complainant's claim that RF fields caused him to have insomnia or aggravated his insomnia. (PPL MB at 23) There have been a number of studies on RF fields and sleep quality, and the body of scientific research has found no adverse effects on sleep quality related to exposure to RF fields from cell phones or RF communications towers. (PPL MB at 23) Similarly, laboratory studies with human volunteers exposed to RF fields have reported no consistent adverse effects on sleep quality due to RF exposures. (PPL MB at 23)

Furthermore, Dr. Israel evaluated scientific research on RF fields and adverse health effects generally. He examined controlled animal laboratory studies, which "provide a reliable basis for determining whether RF fields have the capability to cause or contribute to adverse health effects in animals," such as cancer or adverse effects on growth, development, or reproduction. (PPL MB at 23) These well-designed and well-conducted studies found no such adverse health effects. (PPL MB at 23-24) Dr. Israel further reported that the WHO and many other public health authorities have concluded that the scientific research on RF exposures from cell phone use, which are far higher than the RF from PPL Electric's smart meters, has not shown that RF fields cause adverse health effects. (PPL MB at 24) Several U.S. state public health authorities also have investigated claims about health effects from smart meters and have concluded that there is no credible scientific evidence that RF fields from smart meters will cause or contribute to any adverse health effects. (PPL MB at 24)

Thus, as the only expert in medicine and medical research, particularly as related to RF fields and health, Dr. Israel found to a reasonable degree of medical certainty that there is no reliable medical basis to conclude that RF fields from the AMI meters being used by PPL Electric will cause or contribute to the development of illness or disease. (PPL MB at 24-25)

Based on the foregoing, the Complainant's Exception No. 8 should be denied.

**I. REPLIES TO EXCEPTIONS NOS. 10 AND 12 – THE ALJ CORRECTLY FOUND THAT NOTHING IN ACT 129 PERMITS A CUSTOMER TO OPT-OUT OF THE NEW AMI METER INSTALLATION**

The Complainant challenges the ALJ's findings that there is no "opt-out" under Act 129 and that such an opt-out would require legislation. (Exceptions at 14, 16-17) As alleged support, the Complainant argues that: (1) Act 129 was drafted as an "opt-in" bill; (2) the studies and evidence he has presented, including the NTP and Ramazzini studies, demonstrate that installing the new AMI meter would be harmful to his health and household wiring; and (3) opt-out legislation has been stalled in the General Assembly. (Exceptions at 14, 16-17) Contrary to the Complainant's arguments, the ALJ's findings are well-supported.

First, nothing in Act 129 permits a customer to opt-out of an AMI meter installation. (PPL MB at 11-13) Indeed, the Commission previously has found in several cases that Act 129 mandates the installation of new AMI meters and contains no such opt-out language. *See, e.g., Starr v. PECO Energy Co.*, Docket No. C-2015-2516061, p. 11 (Order entered Sept. 1, 2016); *Frompovich v. PECO Energy Co.*, Docket No. C-2015-2474602, pp. 8-10 (Order entered May 3, 2018). Specifically, in *Starr*, the Commission observed that it has "rejected similar claims that the installation of smart meters is not mandatory or that an opt-out is permissible under Act 129." *Starr* at p. 11. Relatedly, Act 129 was not drafted as an opt-in bill. (PPL RB at 18) Section 2807(f)(2)(iii) mandates that the Company install the new AMI meter "[i]n accordance with a depreciation schedule not to exceed 15 years." (PPL MB at 10-11) As interpreted by the

Commission, subparagraph (iii) requires the Company and other EDCs to install the new AMI meters for all their customers. (PPL MB at 11) Therefore, the ALJ soundly rejected the Complainant's interpretations of Act 129. (ID at 36-40)

Second, as explained previously, the ALJ properly rejected the Complainant's evidence on the alleged health effects and voltage transients caused by the AMI meter. Much of this evidence was improperly presented for the first time in the Complainant's briefs. Even if it were considered, however, the Complainant's evidence is greatly outweighed by the Company's credible expert testimony. (See PPL St. No. 1; PPL St. No. 2) Therefore, his evidence is insufficient to prove that installing the new AMI meter would violate 66 Pa. C.S. § 1501.

Third, the ALJ correctly determined that to the extent the Complainant wants an opt-out under Act 129, the General Assembly needs to amend the statute. Bills have been proposed in the General Assembly to add such an opt-out (see, e.g., House Bill 1564 of 2017-2018 Session), but they have not been enacted. (PPL MB at 12) Although the Complainant may disagree with the General Assembly's actions, his recourse remains asking the legislators to amend the law.

Based on the foregoing, Complainant's Exceptions Nos. 10 and 12 should be rejected.

**J. REPLY TO EXCEPTION NO. 11 – THE ALJ PROPERLY HELD THAT PPL ELECTRIC HAS THE LEGAL RIGHT TO TERMINATE THE COMPLAINANT'S ELECTRIC SERVICE IF IT IS DENIED ACCESS TO ITS METER**

The Complainant disputes the ALJ's conclusion that PPL Electric has a legal right to terminate his electric service if he denies the Company access to its meter in order to replace it. (Exceptions at 15-16) The Complainant states that he will deny the Company access to install the new AMI meter because he believes that the AMI meter would harm him and that Act 129 was intended as opt-in legislation. (Exceptions at 15) This argument is without merit.

The ALJ correctly held that “if the Commission denies and dismisses this Complaint, PPL will have a legal right to initiate termination procedures if it is denied reasonable access to the Company’s meter per its tariff, the Commission’s regulations, and Chapter 14 of the Public Utility Code.” (ID at 40) (citing 66 Pa. C.S. § 1406(a)(4); 52 Pa. Code § 56.81(3); PPL Electric Exhs. 6 and 7) As the ALJ observed, “[i]t is well-settled that where a customer refuses a utility access to its meter, the utility may terminate service after required notice is provided.” (ID at 41) Further, the Commission found in *Frompovich v. PECO Energy Co.* that the termination of service to a customer for refusing a new AMI meter installation was consistent with Section 1501 of the Public Utility Code, the Commission’s regulations, and the utility’s tariff. (ID at 41) Thus, based on this precedent, the ALJ correctly found that the Company can legally terminate the Complainant’s service if he denies the Company access to replace his meter. (ID at 40-41)

For these reasons, the Complainant’s Exception No. 11 should be denied.

**K. REPLY TO EXCEPTION NO. 13 – THE ALJ PROPERLY FOUND THAT MR. BATHGATE’S TESTIMONY WAS UNPERSUASIVE, GIVEN HIS LACK OF KNOWLEDGE ABOUT THE SCIENCE OF RF FIELDS**

The Complainant contests the ALJ’s determination that Mr. Bathgate’s testimony was unpersuasive because Mr. Bathgate, an electrical engineer, lacked knowledge about the basic physical nature of RF fields. (Exceptions at 17-19) To the Complainant, Mr. Bathgate’s failure to know that RF fields are always non-ionizing amounted to “semantic differences” and did not negate Mr. Bathgate’s years of experience. (Exceptions at 17) The Complainant also presents, for the first time, testimony given by Mr. Bathgate in the *McKnight v. PECO Energy Co.* case at Docket C-2017-2621057 about his qualifications. (Exceptions at 17-19) The Complainant’s Exception is without merit.

First, Mr. Bathgate’s failure to know the fundamental scientific principle that RF fields are always non-ionizing is not “semantics,” as alleged by the Complainant. Mr. Bathgate

testified that RF fields can be both non-ionizing and ionizing. To him, ionizing means that the field will produce a heating effect. (PPL MB at 25) Mr. Bathgate averred that he was as confident about this opinion as he was of all of the other opinions he offered at the hearing. (PPL MB at 25) However, Dr. Davis, who is a highly qualified expert in Physics, Electromagnetics and RF Electromagnetics, explained that Mr. Bathgate's opinions about the basic nature and physical behavior of electromagnetic fields were completely wrong. (PPL MB at 25-26) RF fields are always non-ionizing because they do not have sufficient energy to break chemical bonds. (PPL MB at 26) Dr. Davis further explained that RF fields were not ever capable of being in the ionizing portion of the electromagnetic spectrum, and could not switch back and forth as claimed by Mr. Bathgate. (PPL MB at 26) Dr. Davis stated that this was a fundamental and preliminary concept of RF fields that undergraduates would learn "[p]robably in the freshman year" of college or "[m]aybe even in high school." (PPL MB at 26) Thus, given Mr. Bathgate's lack of knowledge about the basic science of RF fields, as well as his utter confidence in his fundamental misunderstandings, the ALJ properly found that his testimony was unpersuasive and unreliable. (ID at 28-29)

Second, Mr. Bathgate's testimony from the *McKnight* proceeding constitutes extra-record evidence that should be entirely disregarded by the Commission. It is well-established that parties cannot introduce new evidence at the exceptions stage. *See Application of Apollo Gas Co.*, 1994 Pa. PUC LEXIS 45, at \*8-14 (Order entered Feb. 10, 1994). Accordingly, the Commission has previously stricken extra-record evidence and arguments based on that evidence in parties' exceptions. *See id.* Even when the evidence is public documents, the Commission has held that it is inappropriate to introduce such extra-record evidence at the exceptions stage. *See id.* Therefore, the Commission should reject this extra-record evidence. Moreover, even if

this evidence were properly introduced into the record, it does not change the fact that Mr. Bathgate lacked knowledge of the essential physics related to RF fields.

Based on the foregoing, the Complainant's Exception No. 13 should be denied.

**L. REPLY TO EXCEPTION NO. 15 – THE ALJ CORRECTLY DETERMINED THAT THE NEW AMI METER IS NOT A FIRE RISK**

The Complainant disputes the ALJ being persuaded by the credible testimony of PPL Electric's witnesses that the new AMI meter is not a fire risk. (Exceptions at 20-21) The Complainant contends that PPL Electric witness Larson "acknowledged safety design deficits" in the new AMI meter. (Exceptions at 20) Further, the Complainant alleges that the Company's testimony about the safety of the AMI meters was contradicted by Mr. Bathgate, who testified that he witnessed his neighbor's AMI meter explode in Michigan. (Exceptions at 20) Moreover, the Complainant avers that the testimony of Dr. Davis is not credible. (Exceptions at 21) The Complainant's arguments are without merit.

First, the Company presented substantial and credible evidence that the new AMI meter is not a fire risk. Indeed, the new AMI meters actually are equipped with software and mechanisms that better alert the Company if there is an issue with overheating. (PPL MB at 33) Specifically, there is a heat alarm set within the meter software program, so when the temperature of the meter hits an established level, the Company is alerted of the issue. (PPL MB at 33) Further, PPL Electric takes 15-minute interval temperature readings from the meter, so it can track the meter's temperature and identify any current issues or problematic trends. (PPL MB at 33) If the Company detects an issue with the meter's temperature, PPL Electric will dispatch a technician to investigate. (PPL MB at 33) Thus, as PPL Electric's expert witness Dr. Davis stated, "the smart meters can actually help people from having a fire" because of the temperature alarms. (PPL MB at 33)

Second, there are not “safety design defects” in the new AMI meters, as alleged by the Complainant. PPL Electric witness Larson simply testified that the Company has conducted substantial research and taken many steps to prevent fire incidents. (PPL MB at 33) From the Company’s research, “the root cause of the vast majority” of any fires involving new meters is the customer-owned meter bases wearing out and producing loose connections between the “blade” of the meter and the “jaw” of the meter base.<sup>1</sup> (PPL MB at 33) Based on that research, PPL Electric has taken several steps to mitigate the risk of these worn out meter bases. (PPL MB at 33) The Company analyzed the materials utilized for meter bases and enhanced its inspection criteria so that its service technicians are better able to “identify loose jaws in the field.” (PPL MB at 33) PPL Electric also ensures that the new AMI meters meet the American National Standards Institute (“ANSI”) and Institute of Electrical and Electronics Engineers (“IEEE”) requirements. (PPL MB at 33)

Third, the alleged meter fire cited by Mr. Bathgate is irrelevant. (PPL MB at 34) The purported incident involved an Itron AMI meter installed by a different electric utility, not the Landis+Gyr AMI meter that PPL Electric is installing. (PPL MB at 34) Nothing presented by Mr. Bathgate establishes: (1) the cause of the alleged fire on his neighbor’s meter; (2) that the Itron AMI meter has the same composition, mechanics, and software as the Landis+Gyr AMI meter; or (3) that the Michigan electric utility implemented the same mechanisms and protocols as PPL Electric to prevent any such incidents. (PPL MB at 34) Thus, the alleged incident bears no consequence on whether the Company’s AMI meter would cause a fire. (PPL MB at 34)

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<sup>1</sup> The “blade” of the new meter fits into the “jaw” of the meter base. (Tr. 235) Over time, the jaw of the meter base could spread out too much, in which case there would be “arcing” between the blade of the new meter and the jaw of the meter base. Such arcing, depending on its severity, could increase the meter’s temperature and lead to a fire. (Tr. 235)

Fourth, contrary to Mr. Bathgate's claims, Dr. Davis explained that the new meter is not a fire risk due to any alleged inadequate surge protection. (PPL MB at 35) His opinion was bolstered by PPL Electric witness Larson, who testified that the "new digital meter, as compared to the analog meter," can better withstand damage from a surge "because of the padding materials that are utilized when building transformers." (PPL MB at 35) In fact, these "padding materials are tested to withstand up to 6,000 volts." (PPL MB at 35) Also, the new AMI meter's surge protection is not functionally different than the current meter. (PPL MB at 35)

Fifth, Dr. Davis possesses exceptional qualifications and presented credible and reliable testimony in this proceeding. (PPL MB at 15-19) Dr. Davis is a highly experienced scientific researcher and teacher in Physics, Electrical Engineering, Electromagnetics, and Radio Frequency Electromagnetics. (PPL MB at 15) Dr. Davis has a Ph.D. in Physics and is a full Professor with an endowed Chair at the University of Maryland, where for over 30 years he has taught Physics, Electrical Engineering, Electromagnetics, and RF Electromagnetics to undergraduate and graduate students. (PPL MB at 15) In addition to his teaching, Dr. Davis is an active scientific researcher in the fields of Physics, Biophysics, Electrical Engineering, Bioelectromagnetics and RF Bioelectromagnetics. (PPL MB at 15-16) He has conducted many scientific studies in these fields and has published over 250 studies in peer-reviewed scientific journals. (PPL MB at 16) In particular, he has conducted a substantial amount of research on RF fields of the type produced by the AMI meters being used by the Company. (PPL MB at 16) Dr. Davis also has served on expert committees that have evaluated the scientific research on RF fields, including the Institute of Electrical and Electronic Engineers ("IEEE") Committee on Man and Radiation ("COMAR") and as chair of the Subcommittee on Radio Frequency Fields, which consists of experts who examine the scientific research on RF fields and evaluate the IEEE

exposure guidelines. (PPL MB at 16) Thus, the Complainant's attempt to assail Dr. Davis's qualifications and the credibility of his testimony is without merit.

For these reasons, the Complainant's Exception No. 15 should be denied.

**M. REPLY TO EXCEPTION NO. 16 – THE ALJ PROPERLY HELD THAT THE COMPLAINANT CANNOT CONTEST THE INSTALLATION OF THE NEW AMI METER ON HIS NEIGHBOR'S PROPERTY BECAUSE IT WOULD VIOLATE THE NEIGHBOR'S DUE PROCESS RIGHTS**

The Complainant challenges the ALJ's finding that he cannot contest the Company's installation of a new AMI meter on his neighbor's property because it would violate the neighbor's due process rights. (Exceptions at 21-22) The Complainant avers that the Company violated the neighbor's due process rights because the Company did not offer the neighbor the ability to opt-out of the installation. (Exceptions at 21-22) Further, the Complainant claims that if the neighbor's AMI meter will cause him harm, he can ask that it be removed. (Exceptions at 22) The Complainant's Exception lacks merit.

First, as the ALJ correctly found, the neighbor has rights and is entitled to due process before this Commission about decisions that directly affect the meter for her account. (ID at 36) Due process is satisfied when a party is "afforded notice and the opportunity to appear and be heard." (ID at 36) Here, nothing in the record indicates that the neighbor wants the meter removed. (ID at 36) In fact, the Complainant has not even spoken with his neighbor about the meter installed on her residence, nor does the Complainant believe that she is even aware of these issues. (ID at 36) The Complainant also conceded that he is not authorized to appear on his neighbor's behalf. (ID at 36) Therefore, it is clear that the neighbor has not been afforded any notice or the opportunity to be heard on this matter. (ID at 36) Thus, the Complainant cannot, without any notice to his neighbor, request that her AMI meter removed. (ID at 36)

Second, the Complainant fails to recognize that the new AMI meter provides several benefits to customers. (PPL MB at 38) The General Assembly and this Commission directed that the new AMI meters: (1) provide customers with direct access to and use of price and consumption information; (2) provide customers with information on their hourly consumption; (3) provide 15-minute or shorter interval data to customers; (4) monitor voltage at each meter and report data in a manner that allows an EDC to react to the information; and (5) communicate outages and restorations. *See* 66 Pa. C.S. § 2807(g); *Smart Meter Implementation Order*, p. 30. The Commission approved PPL Electric's selection of the RF Mesh technology because it possesses all of the required capabilities. (PPL MB at 38) Moreover, as explained previously, the new smart meter is more resistant to fires and power surges. (PPL MB at 38) There also are heat alarms in the new meter that will alert the Company if the meter's temperature exceeds a certain level, enabling PPL Electric to dispatch a technician to investigate if there are current issues or problematic trends. (PPL MB at 38) Furthermore, the new smart meter can alert the Company if a person were trying to tamper with the meter. (PPL MB at 38) Therefore, if the neighbor's new smart meter were removed, all of these benefits would be taken away as well.

Based on the foregoing, the Complainant's Exception No. 16 should be denied.

**N. REPLY TO EXCEPTION NO. 17 – THE ALJ CORRECTLY GAVE LITTLE TO NO WEIGHT TO THE LETTERS FROM A DOCTOR AND THREE HOMEOPATHIC PRACTITIONERS STATING THAT THE COMPLAINANT HAS EHS**

The Complainant challenges the ALJ's decision to give little to no weight to the letters he submitted from one medical doctor and three homeopathic practitioners stating that the Complainant has EHS. (Exceptions at 22-23) As alleged support, the Complainant attempts to introduce extra-record biographical information about the four individuals. (Exceptions at 23)

Further, the Complainant tries to assert his views about the medical education received by homeopaths in India. (Exceptions at 22-23) This Exception is without merit.

First, the Company explained that these hearsay documents are conclusory one-page letters apparently obtained specifically for use in this case. (PPL MB at 29) There is very similar, sometimes nearly identical language in all of the letters, which calls into question the independence and veracity of the statements. (PPL MB at 29) Moreover, Dr. Israel, the only medical expert in this case, testified that the medical record provided by the Complainant, including his four hearsay letters (three of which are from homeopaths who never actually examined the Complainant), “did not provide any useful diagnostic medical information” about his alleged disability and instead appeared to be just “reiterating information that likely was provided by the patient.” (PPL RB at 3) Therefore, the ALJ properly gave these hearsay documents little to no weight.

Second, the information about the practitioners’ background and education is extra-record evidence that should be disregarded. In fact, the ALJ previously struck the extra-record biographical information about these individuals from the Complainant’s Reply Brief. (PPL Motion to Strike ¶ 7(n); ID at 18) Further, the information about the medical education received by homeopathic practitioners in India is not in the record. As explained previously, it is well-established that parties cannot introduce new evidence at the exceptions stage. *See Apollo Gas*, 1994 Pa. PUC LEXIS at \*8-14. Therefore, this extra-record evidence should be entirely disregarded by the Commission.

For these reasons, the Complainant’s Exception No. 17 should be denied.

**O. REPLY TO EXCEPTION NO. 18 – THE ALJ CORRECTLY FOUND THAT THERE IS INSUFFICIENT EVIDENCE TO PROVE THAT THE INSTALLATION OF THE AMI METER WORSENERD THE COMPLAINANT’S SYMPTOMS**

The Complainant contests the ALJ's determination that there is insufficient evidence to prove that the installation of the neighbor's AMI meter caused the worsening of the Complainant's symptoms. (Exceptions at 24) As support for his claim, the Complainant cites his self-reported experience with electromagnetic fields and the four hearsay letters from medical practitioners stating that he has EHS. (Exceptions at 24) These arguments lack merit.

First, the Complainant presented no actual medical records to support his claimed IEI symptoms. (PPL MB at 21) The Complainant only submitted one letter from a family medicine practitioner and three letters from homeopathy (alternative medicine) practitioners in California and India. (Complainant's Exhibit 1) Dr. Israel testified that "[n]one of these letters provide any useful diagnostic medical information." (PPL St. No. 2, p. 16) Rather, "they have the appearance of reiterating information that likely was provided by the patient." (PPL St. No. 2, p. 16) For example, the letter from the family medicine practitioner "does not say when the diagnosis was made, who made it, what medical examination and medical criteria were involved in the diagnosis, or what course of treatment, if any, has been provided by medical professionals since the diagnosis[,] including by the author of the letter." (PPL St. No. 2, p. 16). These are all important factors related to any diagnosis, because there are no established medical criteria for the diagnosis or treatment of IEI (EHS). (PPL St. No. 2, p. 16)

Second, as explained previously, IEI is not a widely accepted medical diagnosis by medical practitioners. (PPL MB at 21-23) Indeed, reliable studies dating back to at least 2002 and more recent reviews of the studies by experts have found that IEI and the variety of symptoms attributed to it are not caused by exposure to RF fields. (PPL MB at 22) Thus, the Complainant's self-reported symptoms are contradicted by the weight of scientific studies disputing any such causal link.

Third, the Complainant concedes that “there are no practical tests for EHS” because “the diagnosis is arrived at by patient report.” (Exceptions at 24) The ALJ noted that the Complainant testified how “[t]here is no test for electromagnetic sensitivity” and how it “is based on the patient’s self-report.” (ID at 25) Therefore, the ALJ determined that “there is a psychological component to EHS.” (ID at 26) Thus, although the Complainant may suffer from insomnia and sleep lag disorder, it does not follow that his symptoms are actually caused by the presence of RF fields or his self-reported IEI (EHS). (ID at 26)

For these reasons, the Complainant’s Exception No. 18 should be denied.

**P. REPLY TO EXCEPTION NO. 19 – THE ALJ PROPERLY CONCLUDED THAT THE COMPLAINANT FAILED TO MEET HIS BURDEN OF PROOF THAT HIS EXPOSURE TO RF FIELDS CAUSED ADVERSE HEALTH EFFECTS**

The Complainant disputes the ALJ’s determination that he has not demonstrated by a preponderance of the evidence that his exposure to RF fields from the Company’s AMI meter has actually caused adverse health effects. (Exceptions at 25) As alleged support, the Complainant cites the draft, unpublished NTP study, the Ramazzini study, and the BioInitiative Report. (Exceptions at 25) The Complainant’s argument is without merit.

As explained previously, the NTP study and the Ramazzini study are extra-record evidence and were properly stricken by the ALJ. *See* Section II.G., *supra*. Further, the BioInitiative Report is an advocacy document, is not a scientific study, and has been widely criticized for its lack of scientific objectivity and reliability, as addressed in Dr. Israel’s direct testimony in this case. *See* Section II.G., *supra*.

Moreover, even if the Complainant’s extra-record and unreliable evidence were considered, it has been substantially rebutted by the thorough and credible expert testimony submitted by the Company. (*See* PPL St. No. 1; PPL St. No. 2) Indeed, in rendering the ID, the

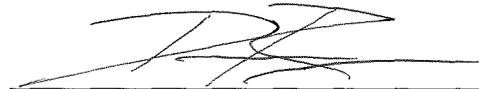
ALJ analyzed in detail all of the evidence on the Complainant's alleged health concerns and found that the Complainant failed to meet his burden of proof that the AMI meter actually caused his symptoms. (ID at 18-29)

Based on the foregoing, the Complainant's Exception No. 19 should be denied.

**III. CONCLUSION**

WHEREFORE, for all the foregoing reasons, as well as those more fully explained in the Initial Decision of Administrative Law Judge Elizabeth H. Barnes and the limited Exceptions filed by PPL Electric Utilities Corporation, the Company respectfully requests that the Pennsylvania Public Utility Commission: (1) deny the Exceptions filed by Alan V. Schumkler; and (2) adopt the Initial Decision consistent with the Company's limited Exceptions.

Respectfully submitted,



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