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August 16, 2019

***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: Thomas Aguirre v. PPL Electric Utilities Corporation**  
**Docket No. C-2018-3005352**

Dear Secretary Chiavetta:

Enclosed please find the Replies of PPL Electric Utilities Corporation to the Exceptions of Thomas Aguirre for filing in the above-referenced proceeding. Copies will be provided as indicated on the Certificate of Service.

Respectfully submitted,



Devin Ryan

DTR/dmc  
Enclosures

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

## 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 FIRST CLASS MAIL

Thomas Aguirre  
1561 Sunset Drive  
Mifflintown, PA 17059

Date: August 16, 2019



Devin T. Ryan

**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Thomas Aguirre,	:	
	:	
Complainant,	:	
	:	
v.	:	Docket No. C-2018-3005352
	:	
PPL Electric Utilities Corporation,	:	
	:	
Respondent.	:	

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**REPLIES OF PPL ELECTRIC UTILITIES CORPORATION TO THE  
EXCEPTIONS OF THOMAS AGUIRRE**

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Date: August 16, 2019

Attorneys for PPL Electric Utilities Corporation

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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 Thomas Aguirre (“Complainant”). In the Initial Decision (“ID”), Administrative Law Judge Elizabeth H. Barnes (the “ALJ”) dismissed the Complainant’s Formal Complaint challenging the Company’s planned installation of a new advanced metering infrastructure (“AMI”) meter at his premises. 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 2, 2019, the Complainant filed Exceptions to the ID.<sup>1</sup>

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 without modification.<sup>2</sup>

## **II. REPLIES TO EXCEPTIONS**

### **A. REPLIES TO EXCEPTIONS NOS. 1-25 – THE ALJ PROPERLY FOUND THAT THE COMPLAINANT FAILED TO SUSTAIN HIS BURDEN OF PROOF THAT INSTALLING THE NEW AMI METER WOULD VIOLATE SECTION 1501 OF THE PUBLIC UTILITY CODE**

The Complainant disputes the ALJ’s finding that he failed to meet his burden of proof that installing the new AMI meter would violate Section 1501 of the Public Utility Code.

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<sup>1</sup> Per the Secretarial Letter serving the ID, Exceptions were due within 20 days (*i.e.*, by August 6, 2019), and Replies thereto were due within 10 days after that (*i.e.*, by August 16, 2019). Therefore, these Replies are timely filed in response to the Complainant’s August 2, 2019 Exceptions.

<sup>2</sup> The Complainant failed to number each of his Exceptions as required by the Commission’s regulations. *See* 52 Pa. Code § 5.533(b) (stating “[e]ach exception must be numbered”). Therefore, PPL Electric treats each heading with a page number and finding of fact number to be an individual Exception, of which there are 25 in total. Moreover, there is substantial overlap in the Complainant’s Exceptions. Accordingly, PPL Electric responds to the Complainant’s Exceptions by subject matter rather than individually by the number of the Exception.

(Exceptions at 1-11.) According to the Complainant, the installation of the new AMI meter could cause adverse health effects, based on his own experience and several studies that allegedly support his position. (Exceptions at 1-7, 11.) He further claims that the new AMI meter is a fire hazard because other meters for some electric utilities were allegedly recalled. (Exceptions 1.) Moreover, the Complainant contends that the AMI meter raises privacy and cybersecurity concerns. (Exceptions at 7-11.) As explained herein, the Complainant's Exceptions are without merit and should be denied.

**1. The ALJ Correctly Determined that There Is No Reliable Medical or Scientific Basis to Conclude that the New AMI Meter Will Cause, Contribute to, or Exacerbate Any Adverse Health Effects**

The ALJ properly held that there is no reliable medical or scientific basis to conclude that the new AMI meter will cause, contribute to, or exacerbate any adverse health effects. (ID at 17-25.) As a preliminary matter, the ALJ correctly determined that the Complainant failed to establish a *prima facie* case to show that any radio frequency ("RF") exposure from the AMI meter will cause him to experience adverse health effects. (ID at 24.) As the ALJ observed, "No corroborative medical evidence was proffered to support Complainant's testimony," and "[t]here is insufficient evidence to show that an AMI meter will cause him to suffer deleterious health effects." (ID at 24.)

In addition, PPL Electric presented thorough, credible, and reliable expert testimony refuting the Complainant's bald assertions and establishing that there is no reliable medical or scientific basis to conclude that the new AMI meter will cause, contribute to, or exacerbate any adverse health effects. (ID at 10, 17-25; PPL St. No. 1, pp. 5-16; PPL Exhibits CD-1 through CD-5; PPL St. No. 2, pp. 7-20; PPL Exhibits MI-1 through MI-3.)

First, Dr. Davis testified that the Federal Communications Commission ("FCC") has determined safe public exposure levels for RF fields from devices that transmit RF signals, such

as the AMI meters. (PPL St. No. 1, p. 9.) 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 Environmental Protection Agency (“EPA”). (PPL St. No. 1, p. 9.) The FCC continues to coordinate with the agencies and to consider whether new scientific research shows any adverse effects from RF fields. (PPL St. No. 1, pp. 9-10.)

Based on the engineering specifications for the Landis + Gyr AMI meter being deployed by the Company, Dr. Davis calculated that the levels of RF fields from the AMI meters are **98,000 times lower** than the RF exposure safety limits established by the FCC. (PPL St. No. 1, p. 13; PPL Exhibit CD-2.) As a result, Dr. Davis found that “the RF field levels from the AMI meters being used by PPL Electric more than comply with the applicable FCC RF exposure limit.” (PPL St. No. 1, p. 13.) Moreover, the RF signals from the AMI meter are of very short duration and will occur for only a total of 84 seconds over a 24-hour period. (PPL St. No. 1, p. 7.)

Dr. Davis also testified that there are many sources of RF signals in the everyday environment and the RF fields from the AMI meter are much lower than from other typical sources. (PPL St. No. 1, p. 14.) For example, RF fields from using cell phones can be over 260,000 times higher than the RF fields from the AMI meter, and RF exposures from microwave ovens can be over 820,000 times higher. (PPL St. No. 1, p. 14.) Even 30 feet away from a person using a cell phone, the RF fields are 3 times higher than from the AMI meter. (PPL St. No. 1, p. 14.)

Furthermore, the existing background levels of RF fields at the Complainant’s residence are many times higher than the fields from the AMI meter. (PPL St. No. 1, p. 15.) Dr. Davis

testified that there are 6 television broadcast towers within a 50-mile radius of the Complainant's location. (PPL St. No. 1, p. 15.) Based on the locations of each tower and their RF power outputs, the constant background levels of RF fields at the Complainant's residence are **5.44 times higher** than the RF signals from the AMI meter. (PPL St. No. 1, p. 15; PPL Exhibit CD-5.) Thus, considering the AMI meter's RF fields are substantially lower than the FCC standard and many everyday sources, there is no reliable scientific basis to conclude very low levels of RF fields from the AMI meters being deployed by the Company can or will cause any adverse thermal or non-thermal biological effects in people. (PPL St. No. 1, pp. 15-16.) Notably, Dr. Davis's expert testimony on these points was not contradicted by any other expert testimony.

Second, Dr. Israel – the only medical expert to present testimony in this case – evaluated the scientific research on RF fields and adverse health effects. (PPL St. No. 2, p. 8.) He testified that he has been systematically examining this research over the past several decades and that many hundreds of studies have been published. (PPL St. No. 2, p. 6.) Dr. Israel stated that the three groups of controlled laboratory studies on animals “are particularly informative because they address fundamental biological functions that are very sensitive to any disruption: genetics, reproduction, and growth and development.” (PPL St. No. 2, p. 8.) Dr. Israel described a number of the studies in these areas which he considered good examples of well-designed and well-conducted studies, which found no adverse effects on genetics, fertility, reproduction, growth, or development in the animals exposed to RF fields. (PPL St. No. 2, pp. 8-9.) Further, Dr. Israel provided examples of well-conducted animal studies on RF fields and cancer. (PPL St. No. 2, pp. 9-10.) These studies also did not find any increased incidence in cancer in the RF exposed animals compared to non-exposed animals. (PPL St. No. 2, pp. 9-10.)

Based on the body of scientific research showing no consistent and reproducible effects from RF fields on cancer and other adverse health effects, the World Health Organization (“WHO”) has concluded that “no adverse health effects have been established as being caused by mobile phone use.” (PPL St. No. 2, p. 10.) Many other public health authorities, including agencies in Canada, the U.K., Sweden, Norway, the Netherlands, and New Zealand, among others, have recently reached similar conclusions. (PPL St. No. 2, pp. 10-11.) Further, several U.S. state public health authorities and public utility commissions have investigated claims about health effects from smart meters, all of which have found that RF fields from smart meters do not pose any public health risk. (PPL St. No. 2, p. 11.)

In addition, Dr. Israel reviewed the published scientific research on electromagnetic hypersensitivity (“EHS”) from the perspective of a medical doctor. (PPL St. No. 2, pp. 12-15.) 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 St. No. 2, pp. 12-13.) This is consistent with a recommendation from the WHO. (PPL St. No. 2, pp. 12-13.) 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 St. No. 2, p. 13.) 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 St. No. 2, pp. 13-14.) Another 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 St. No. 2, p. 14.) That study concluded that “it is IEI-EMF individuals’ belief that exposure to RF EMFs will cause harm, rather than actual exposure itself, that results in the presence of symptoms in IEI-EMF individuals.” (PPL St. No. 2, p. 14.) Moreover, the research on IEI has been evaluated by credible public health entities and expert groups, including the United Kingdom Health Protection Agency (2012), the Royal Society of Canada (2013), the New Zealand Ministry of Health (2015), and the European Commission’s Scientific Committee on Emerging and Newly Identified Health Risks (2015). (PPL St. No. 2, pp. 14-15.) Based on their reviews of the scientific research, these entities concluded there is no reliable scientific evidence that exposure to RF fields causes claimed IEI symptoms. (PPL St. No. 2, pp. 15-16.)

Furthermore, as noted by the ALJ, Dr. Israel performed a medical evaluation on whether exposure to RF fields causes or contributes to other health conditions raised by the Complainant, including Systemic Candidiasis,<sup>3</sup> Lyme disease,<sup>4</sup> heavy metal toxicity,<sup>5</sup> and hypothyroidism.<sup>6</sup> (ID at 9-10.) Based on Dr. Israel’s expert testimony, the ALJ concluded that there is no reliable medical basis to conclude that the RF fields from the AMI meters will cause or contribute to any of these health conditions, “any of the symptoms claimed by the Complainant, or any other adverse health effects.” (ID at 9-10.)

As a result, the Company presented overwhelming evidence through its scientific and medical expert witnesses, Dr. Christopher Davis and Dr. Mark Israel, to support the ALJ’s

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<sup>3</sup> “Systemic Candidiasis is a type of fungal infection that can occur in the body.” (PPL St. No. 2, p. 15.)

<sup>4</sup> “Lyme disease is an infection spread through the bites of infected ticks.” (PPL St. No. 2, p. 16.)

<sup>5</sup> “Heavy metal toxicity typically refers to elevated levels of heavy metals in the body, which can produce a variety of symptoms, some of which (such as headaches, fatigue, sleep problems, and others) are similar to symptoms described for IEI/EHS.” (PPL St. No. 2, p. 17.)

<sup>6</sup> “Hypothyroidism is a medical condition that is the result of insufficient production of thyroid hormone, which is regulated by a different hormone produced in the pituitary gland.” (PPL St. No. 2, p. 18.)

finding that there is no reliable basis to conclude that the new AMI meter will cause or contribute to any adverse health effects. (ID at 10, 17-25.)

Nevertheless, the Complainant contends that the ALJ erred in finding that he failed to sustain his burden of proof. To the Complainant, he believes that he does not need to prove that the RF fields from AMI meters are the “origin” of his symptoms; rather, he thinks it is sufficient to establish that there is uncertainty as to whether the AMI meter will cause him to experience adverse health effects or not. (Exceptions at 6-7, 11.) The Complainant also contends that the RF measurements performed by Matt Fiskin at his home should have been given weight. (Exceptions at 4.) He also maintains that the AMI meter produces “High Voltage Transients” that “can radiate through all wiring in the home.” (Exceptions 2.) Further, the Complainant disputes some of the findings of Dr. Davis, alleging: (1) the FCC limit for RF exposure is 10 w/m<sup>2</sup>; (2) IEEE CS95.1-1999 is applicable to the AMI meters; (3) the AMI meters emit “spiked pulse[s] . . . up to 84,000 times through out the course of the day and night”; (4) the Commission should disregard the average RF exposure from the AMI meters and focus on the peak RF emissions instead; and (5) Dr. Davis’s testimony about the background RF from television tower transmissions should be disregarded because, according to the Complainant, the “higher level RF” from those towers “occurs at a height not accessible to the general public,” whereas the AMI meter “has the highest PEAK radio frequency output at a low ground level.” (Exceptions at 2, 4-5.) Additionally, the Complainant asserts that certain studies and other documents that are not in the record allegedly contradict the ALJ’s findings on the health issues. (Exceptions at 1-7, 11.)

The Commission should soundly reject the Complainant's arguments because he misstates and mischaracterizes the record evidence and applicable law and improperly attempts to introduce and rely on extra-record evidence.

To begin, the Complainant fails to recognize the burden of proof applied by the Commission in this proceeding. It is well-established that “[p]roof of causation is required in order to prevail under Section 1501.” *Hoffman-Lorah v. PPL Elec. Utils. Corp.*, 2019 Pa. PUC LEXIS 195, at \*62 (Order entered May 23, 2019), *appeal pending*, 712 C.D. 2019 ; *see, e.g., Sunstein Murphy v. PECO Energy Co.*, 2019 Pa. PUC LEXIS 159, at \*51-52 (Order entered May 9, 2019), *appeal pending*, 606 C.D. 2019. It is not sufficient to merely demonstrate “a potential for harm.” *Hoffman-Lorah*, 2019 Pa. PUC LEXIS at 62. Therefore, a person does not sustain his or her burden of proof in an electric and magnetic field exposure case when the record evidence, “taken as a whole, leads to the ultimate finding and conclusion that the scientific studies at present are inconclusive.” *Letter of Notification of Phila. Elec. Co. Relative to the Reconstructing and Rebuilding of the Existing 138 kV Line to Operate as the Woodbourne-Heaton 230 kV Line in Montgomery and Bucks Cntys.*, 1992 Pa. PUC Lexis 160, at \*210-11 (June 29, 1992) (Initial Decision) (“*Woodbourne-Heaton*”). Thus, the Complainant mistakenly believes he should prevail because, according to him, there is uncertainty in the scientific and medical communities over whether AMI meters cause or contribute to adverse health effects.<sup>7</sup>

In addition, the ALJ properly disregarded the Complainant's testimony about the RF measurements allegedly performed by Matt Fiskin at the Complainant's residence. As the ALJ determined, “There is no evidence to show Mr. Fiskin is an expert in these fields,” and the “Complainant offered no evidence to show the readings of Mr. Fiskin were accurate, or even

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<sup>7</sup> As explained previously, PPL Electric's expert witnesses presented credible, thorough, and reliable testimony establishing that there is no reliable medical or scientific basis to conclude that the AMI meters will cause, contribute to, or exacerbate adverse health effects.

what the readings were.” (ID at 23.) The ALJ also found that “[t]he meter used by Mr. Fiskin to measure RF fields appears to be a fairly low-cost meter manufactured by Gigahertz Solutions,” and Dr. Davis “would never use such a meter to make reliable measurements of RF fields because smart meters are complex to measure properly and require very expensive RF measurement equipment to see what they are really transmitting.” (ID at 23.) Indeed, “the Gigahertz Solutions meter could have been measuring spurious signals coming in through a nearby powerline and could have been measuring signals from local television broadcast towers.” (ID at 23.) Thus, like the ALJ, the Commission should find that the Complainant’s testimony on Mr. Fiskin’s measurements to be “based upon conjecture and incomplete information.” (ID at 23.)

Moreover, the Complainant’s allegation that the AMI meter produces “High Voltage Transients” completely lacks evidentiary support. On this issue, the ALJ correctly relied on Dr. Davis’s expert testimony and found that “AMI meters do not generate electricity, do not generate harmonics and transients that are significant compared to the harmonics and transients already present on the 60 Hz power coming into the home and do not interfere with the operation of household wiring.” (ID at 21-22.) Nothing raised in the Complainant’s Exceptions, including the extra-record evidence he tries to introduce, warrants disturbing the ALJ’s finding.

The Complainant also erroneously claims that the FCC limit for RF exposure from the AMI meters is “10 w/m<sup>2</sup>” and that IEEE CS95.1-1999 is applicable to the AMI meters. In actuality, the FCC RF exposure limit is 0.6 mW/cm<sup>2</sup>, which equals 6.0 W/m<sup>2</sup>. (PPL Exh. CD2.) Moreover, IEEE CS95.1-1999 does not apply to AMI meters. Indeed, both of these facts are confirmed by one of the Complainant’s own exhibits. (*See* Complainant’s Exh. C, pp. 1, 3.) Specifically, in Complainant’s Exhibit 3, it states that the FCC RF exposure limit for 900 MHz

frequency is  $6 \text{ W/m}^2$  and that the document “will not address the ANSI and IEEE limits further here because the FCC limits are the ones applicable to Smart Meters.” (Complainant’s Exh. C, pp. 1, 3.)

Furthermore, the Complainant incorrectly asserts that the AMI meters send spiked pulses up to 84,000 times per day. Dr. Davis explained that the AMI meters do “not produce pulsed RF fields”; rather, the AMI meter “produces sinusoidal RF fields, which are physically different fields from pulsed fields.” (PPL St. No. 1, p. 8.) Additionally, Dr. Davis testified that “[t]he 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.) This equates to between approximately 1,333 and 1,826 transmissions per day, not the 84,000 times alleged by the Complainant.

The Commission should further disregard the Complainant’s allegation that the peak, rather than average, calculation of RF exposure is the relevant standard. Dr. Davis explained that “for purposes of comparison to the FCC limits, the 30-minute RF average exposures . . . are the appropriate measure and these are 98,000 times lower than the FCC limits.” (PPL St. No. 1, p. 13.) Notwithstanding, Dr. Davis testified that “the peak RF field level from the AMI meters being used by PPL Electric is 95 times lower than the FCC exposure limit for 30-minute average exposure.” (PPL St. No. 1, p. 13.) Thus, even under the Complainant’s theory that only the AMI meter’s peak RF emissions should be considered, the peak RF produced by PPL Electric’s AMI meter is well below the FCC exposure limit.

Lastly, the Complainant’s allegations about the RF produced by television towers and how the ALJ’s findings of fact purportedly conflict with certain studies and documents are entirely based on extra-record evidence and should be disregarded. As explained in Section

II.A.4., *infra*, none of this evidence is in the record. Therefore, the Complainant cannot introduce them, for the first time, in his Exceptions. As a result, the Commission should completely reject these allegations.

**2. The Complainant Failed to Prove that the New AMI Meter Is Unsafe and Would Cause Fires**

The Complainant also contends that the AMI meters are unsafe and would cause fires. (Exceptions at 1.) As alleged support, the Complainant claims that “96,000 smart meters” were recalled by PECO Energy Company in 2012, “70,000 smart meters” were recalled by Portland General Electric in 2014, and “10,000 smart meters” were recalled in Lakeland, Florida in 2014. (Exceptions at 1.) The Commission should reject the Complainant’s argument entirely.

Unrebutted record evidence demonstrates that the new AMI meters meet the standards issued by the American National Standards Institute (“ANSI”) and Underwriters Laboratories (“UL”), specifically ANSI C12.10 and UL 2735. (PPL St. No. 4, p. 8.) Furthermore, when selecting the new AMI meter, safety was a paramount concern of PPL Electric. (PPL St. No. 4, p. 8.) Accordingly, the Company held the new AMI meters to a higher standard than the national standards and even conducted independent testing with a third party of the potential new AMI meters. (PPL St. No. 4, p. 8.) The Landis + Gyr RF Mesh meter selected by the Company was the best performer in all of these tests and met PPL Electric’s stringent requirements. (PPL St. No. 4, p. 8.) The testing was mainly designed around the meter baseplate material and its capacity to withstand a temperature equal or greater than 160 degrees Celsius. (PPL St. No. 4, p. 8.)

Additionally, through the Company’s testing, PPL Electric was able to determine and simulate the root cause of the vast majority overheating issues. (PPL St. No. 4, p. 9.) It was determined as a loose or broken connection within the customer-owned meter base. (PPL St. No.

4, p. 9.) The Company has taken several steps to address potential issues with loose or broken connections, including expanding its inspection criteria and training its installers to perform enhanced inspections that include: (1) checking for signs of wear or detachment on the customer's facility; (2) carefully removing the meter ensuring facility hardware is intact; (3) inspecting the removed meter for signs of pitting or discoloration (an indication of micro-arching); (4) inspecting the meter base's jaws for signs of pitting, discoloration, or separation; and (5) inspecting the meter and meter base generally for loose and broken parts and tightness. (PPL St. No. 4, p. 9.) Moreover, as mentioned previously, PPL Electric tested the AMI meters' baseplate material to ensure they could withstand a temperature equal or greater than 160 degrees Celsius, in case any micro-arching were to occur. (PPL St. No. 4, p. 9.)

Further, the AMI meters are equipped with software and mechanisms that address issues with overheating. (PPL St. No. 4, p. 10.) For example, the meter's temperature is sent to the Company in 15-minute intervals. (PPL St. No. 4, p. 10.) PPL Electric monitors the meter's temperature data, so it can track the meter's temperature and identify any current issues or problematic trends. (PPL St. No. 4, p. 10.) There also is a heat alarm, so when the temperature of the meter hits an established 85 degree Celsius level, the Company is alerted of the issue. (PPL St. No. 4, p. 10.) When PPL Electric determines there may be an issue or when the heat alarm is triggered, the Company dispatches personnel to investigate. (PPL St. No. 4, p. 10.) In contrast, the Complainant's currently-installed PLC meter does not have these capabilities. (PPL St. No. 4, p. 10.)

Finally, PPL Electric witness Vinciguerra explained that the Company has deployed over 1 million of these meters in its service territory, and none of them has caused any fires. (PPL St. No. 4, p. 10.)

For these reasons, the Complainant failed to prove that the new AMI meter is unsafe and would cause fires.

**3. The ALJ Correctly Held that the Complainant Failed to Prove that the New AMI Meter Is a Privacy and Cybersecurity Risk**

The Complainant also has raised privacy and cybersecurity issues with the new AMI meter, specifically whether the Company takes appropriate steps to protect against hacking. (Tr. 13-14.) As alleged support, the Complainant claims that the Company will be able to collect detailed data about his electric usage, PPL Electric's privacy policy may change in the future, the Company could change its policy that the ZigBee radio inside the meter is only turned on upon customer request, and several companies have allegedly been hacked this year. (Exceptions at 7-11.) The Complainant's arguments are without merit.

The ALJ properly found that the Complainant failed to prove that the new AMI meter is a privacy and cybersecurity risk for several reasons. (ID at 25-27.) First, PPL Electric witness Vinciguerra testified that "[c]ybersecurity was one of the cornerstones" of its Smart Meter Plan filing and that the Company takes several steps to protect the data it receives from the new AMI meters, including the use of technologies such as firewalls, encryption, digital signatures, authentication and access controls. (PPL St. No. 4, pp. 7-8.) Data collected within the meters is protected through proprietary-based applications and five levels of password protection. (PPL St. No. 4, p. 7.) Prior to transmission, the data is highly encrypted utilizing advanced security appliances. (PPL St. No. 4, p. 7.) Once the data reaches the Company's head systems, the data is further protected through means of firewalls and user role functions. (PPL St. No. 4, p. 7.) These user role functions limit the availability of data and functions to only what the user's job requires, and even within these roles, the user is only granted a security key that allows access

for that day. (PPL St. No. 4, pp. 7-8.) All of these cybersecurity policies and practices are consistent with the national standard for the industry. (PPL St. No. 4, p. 8.)

Second, contrary to the Complainant's allegation, the new AMI meter cannot tell if a customer is using a particular appliance. (PPL St. No. 3, p. 7.) As PPL Electric witness Durkin explained, "The Company only collects information about the total electric usage at the premises," and this "information does not differentiate between the use of any specific appliance or appliances." (PPL St. No. 3, p. 7.)

Third, as a part of its Smart Meter Plan proceeding, PPL Electric filed a detailed AMI Customer Privacy Policy, which sets forth the data PPL Electric will collect through the new smart meter, the steps the Company will take to protect the data, and the ways in which PPL Electric will use the data. (PPL St. No. 3, p. 6; PPL Electric Exhibit KD-3.) Consistent with that policy, the Company will collect data on the total amount of electricity used at the premises as well as significant event information, such as outages, voltage, heat alarms, and meter tampering alerts. (PPL St. No. 3, p. 7; PPL Electric Exhibit KD-3, Section 1.2.) Moreover, PPL Electric does not share AMI Data, except as required or permitted by law, regulatory agencies, or governmental authorities. (PPL St. No. 3, p. 8.) Nothing in the record supports the Complainant's contention that the Company's AMI Customer Privacy Policy, or the Company's practice to turn on the ZigBee radio only upon customer request, may change in the future.

Fourth, the Complainant's claim that several companies have been hacked in the past year is entirely based on extra-record evidence. As explained in Section II.A.4., *infra*, none of this evidence is in the record. Therefore, the Commission should completely disregard the Complainant's allegations about other companies being hacked.

For these reasons, the ALJ correctly found that the Complainant failed to prove that the new AMI meter is a privacy and cybersecurity risk.

**4. The Commission Should Reject the Complainant’s Attempt to Introduce and Rely on Extra-Record Evidence in His Exceptions**

Throughout his Exceptions, the Complainant improperly attempts to introduce and rely upon evidence that was not admitted at the hearing and, therefore, is not a part of the record. Indeed, the majority of the Complainant’s Exceptions are references to or quotes from extra-record evidence. (Exceptions at 1-11.) Specifically, the Complainant’s Exceptions presents, cites to, or mentions the following materials and alleged facts, which are **not** in the record<sup>8</sup>:

- Claim that 70,000 meters were recalled by Portland General Electric in 2014 (Exceptions at 1.)
- Claim that 10,000 smart meters were recalled by Lakeland, Florida in 2014 (Exceptions at 1.)
- Alleged quote from Martha Herbert in *Pathophysiology 2013* (Exceptions at 1.)
- Alleged quote from Henry Lai about “Long term exposure to EMF’s” (Exceptions at 1.)
- Alleged quote from Martin Pall about “Ion-channel’s (VCCGS) in our cell” (Exceptions at 1.)
- Claim that “switching power supplies can generate spikes of Electromagnetic Interference (EMI) or High Frequency Transients” and that “[a]ll meters measured so far- including the Landis GYR emit noise on the customer’s electrical wiring in the form of high frequency voltage spikes (up to 60,000 Hz) (Exceptions at 2.)
- Allegations and purported quotes from the Food and Drug Administration (“FDA”) and the U.S. Environmental Protection Agency (“EPA”) in 1993 about the FCC exposure limit (Exceptions at 2.)
- Alleged quote from Kenneth R. Foster that “[t]here are very large differences in different national guidelines” (Exceptions at 2.)
- Claims about the RF field exposure standards in Switzerland, China, and Russia (Exceptions at 2.)

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<sup>8</sup> PPL Electric compiled this list based upon its best efforts.

- Allegations about IEEE C95.1-1999 (Exceptions at 2.)
- References to 20 documents and purported studies on pages 2 through 4, beginning with “IEEE Standards Coordinating Committee 28 on Non-Ionizing Radiation Hazards” and ending with “Foster KR, Vecchia P, Repacholi MH (2000) Science and the precautionary principle. Science 28” (Exceptions at 2-4.)
- Claim that the “HF-35C” meter to measure RF emissions is a “popular favorite” (Exceptions at 4.)
- Claims about the signals from “television broadcast towers” as compared to AMI meters (Exceptions at 5.)
- Alleged quote from the U.S. Department of Interior (“DOI”) in 2014 (Exceptions at 5.)
- Alleged quote from an untitled document from *PubMed* that was purportedly published in the *New Zealand Medical Journal* about “the prevailing official narrative in New Zealand concerning the relationship between public health and the radio frequency emissions . . .” (Exceptions at 5.)
- Statement that “science is not static but evolutionary and sometimes a bit political-cigattes were once ‘physician’ tested and approved as a counter to public health concerns” (Exceptions at 6.)
- Allegation about the Centers for Disease Control and Prevention’s (“CDC”) findings regarding the diagnosis of Multiple Chemical Sensitivities (Exceptions at 6.)
- Claim that the terms “EMF or EHS are much more widely used and accepted,” that the World Health Organization uses the term “EMF,” and that “studies and literature” demonstrate “the universal acceptance of EHS and EMF terminology” (Exceptions at 6.)
- Allegations about “[o]ver 220 scientific peer reviewed published reports on the effects of non-ionizing radiation” and the state of scientific research on the topic, including references to two documents in *PubMed* (Exceptions at 6.)
- Alleged quote from the IARC that “[e]missions given off by smart meters as possible human carcinogen” (Exceptions at 7.)<sup>9</sup>
- Alleged quote from the American Academy of Environmental Medicine in January 2012 (Exceptions at 7.)

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<sup>9</sup> The Company notes that this statement is directly refuted by Dr. Israel’s expert testimony, where he states that the “2011 IARC review did not classify RF fields from smart meters as being carcinogenic, probably carcinogenic, or even possibly carcinogenic.” (PPL St. No. 2, p. 11.) Rather, “IARC concluded that for environmental exposures to RF fields, including RF fields from smart meters, the research was ‘inadequate’ to reach conclusions about cancer causation.” (PPL St. No. 2, pp. 11-12.)

- Two alleged quotes from *J Microsc Ultrastruct* in *PubMed* in 2017 (Exceptions at 7.)
- Chart on the alleged “load signatures” collected through AMI meters (Exceptions at 8.)
- Statement that “this created detailed information can be easy accessed with a warrant by Federal Agencies- and sometime[s] without one as what happened when Seattle City Light provided immigration and customs enforcement detailed information on there [sic] base back in 2017” (Exceptions at 8.)
- Statement that “[a] firewall is not foolproof and can be ‘leaky’ if its [sic] miss configured [sic]” (Exceptions at 8.)
- Claim that it is “unrealistic” to assume that “PPL will maintain a standard of privacy for its customer base, in light of future deregulation campaigns” (Exceptions at 8.)
- Claim that “privacy rollbacks have been rammed through the house which eliminated broadband opt-in rules” (Exceptions at 8)
- Alleged quote from Cho Park and Alex Hosenball on *ABC News* on May 4, 2018 (Exceptions at 8.)
- Allegations about “FCC expansions,” utilities marketing to third parties, and utilities being able to change their policies regarding ZigBee radio activation (Exceptions at 8-9.)
- Alleged quote from Miles Keogh in 2015 (Exceptions at 9.)
- Claim that the ZigBee radio enables a utility to collect information from a customer and that “opt-in provision can change to an opt-out provision at the discretion of PPL Utilities Corporation” (Exceptions at 9.)
- List of alleged “security breaches from hacking” since January 2019 (Exceptions at 9-10.)
- Allegation about “massive security breach” involving Capitol One (Exceptions at 11.)
- Alleged quote from Aimee Picchi on *WCBS News* on July 30, 2019 (Exceptions at 11.)
- Claim that PPL Electric’s use of “wireless technology in this form of data collection leaves [its] sensitive consumer information subject to potentially the same vulnerabilities of cyber attacks” (Exceptions at 11.)

The Commission should completely disregard the Complainant’s extra-record evidence.

It is well-established that parties cannot introduce evidence for the first time at the exceptions

stage.<sup>10</sup> “The Commission, as an administrative body, is bound by the due process provisions of constitutional law and by the principles of common fairness.” *Hess v. Pa. PUC*, 107 A.3d 246, 266 (Pa. Cmwlth. 2014) (citations omitted). “Among the requirements of due process are notice and an opportunity to be heard on the issues, to be apprised of the evidence submitted, to cross-examine witnesses, to inspect documents, and to offer evidence in explanation or rebuttal.” *Id.* (citations omitted). Indeed, Section 332(c) of the Public Utility Code entitles every party to, among other things, “submit rebuttal evidence” and “conduct such cross-examination as may be required for a full and true disclosure of the facts.” 66 Pa. C.S. § 332(c); *see Pa. PUC v. Nat’l Fuel Gas Distrib. Corp.*, 1993 Pa. PUC LEXIS 95, at \*10 (Order entered July 30, 1993) (“[S]uch material was outside the record and could be detrimental to the rights of other parties to confront such evidence.”).

Here, all of these facts and materials were introduced for the first time in the Complainant’s Exceptions. By waiting until his Exceptions to present these new alleged facts and materials, the Complainant denied PPL Electric an opportunity to review and inspect that evidence, to cross-examine the Complainant about that evidence, and to present evidence in rebuttal. Therefore, it would violate PPL Electric’s due process rights for any of the Commission’s findings be based upon or influenced by the Complainant’s extra-record evidence.

In addition, Section 5.431 of the Commission’s regulations prescribes that “[t]he record will be closed at the conclusion of the hearing unless otherwise directed by the presiding officer or the Commission.” 52 Pa. Code § 5.431(a). Particularly relevant here, “[a]fter the record is closed, additional matter may not be relied upon or accepted into the record unless allowed for good cause shown by the presiding officer or the Commission upon motion.” *Id.* § 5.431(b).

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<sup>10</sup> *See, e.g., Application of Apollo Gas Co.*, 1994 Pa. PUC LEXIS 45, at \*8-9 (Order entered Feb. 10, 1994) (denying party’s attempt to introduce extra-record evidence in its exceptions).

Petitions to reopen the record can be granted “if there is reason to believe that conditions of factor or law have so changed as to requires, or that the public interest requires, the reopening of the record.” 52 Pa. Code § 5.571.

Here, the record closed on June 24, 2019. (ID at 2.) The Complainant made no motion to keep the record open or to reopen the record so that his extra-record evidence could be admitted. Moreover, in his Exceptions, the Complainant never demonstrates good cause for introducing this extra-record evidence, nor does he show changes in fact or law that would warrant the reopening of the record to admit such evidence. As a result, the Complainant’s extra-record evidence cannot be admitted into the record.

Thus, although PPL Electric has decided not to burden the Commission with ruling on a Motion to Strike these portions of the Complainant’s Exceptions, the Commission should not rely on the Complainant’s extra-record evidence to make any findings in this proceeding. *See, e.g., Petition of Pa. Power Co. for Approval of Interim POLR Supply Plan*, 2006 Pa. PUC LEXIS 56, at \*3 (Order entered Apr. 28, 2006) (observing that “ALJ Gesoff ignored Reliant’s Reply Brief, due to the extra-record evidence contained within”).

**5. The Complainant’s Request Not to Have the New AMI Meter Installed before 2021 Is Completely Unsupported and Inconsistent with the Deployment Schedule Approved by the Commission**

As explained in the preceding sections, the Complainant wholly failed to meet his burden to prove that the installation of the new AMI meter would violate Section 1501 of the Public Utility Code. *See* 66 Pa. C.S. § 1501. Nevertheless, the Complainant alternatively requests that if the AMI meter has to be installed, the Company should delay the installation “until the end of 2021.” (Exceptions at 11.) The Commission should reject the Complainant’s alternative request for relief.

First, the Complainant failed to prove that installing the new AMI meter would violate Section 1501 of the Public Utility Code. *See* Section II.A.1-3., *supra*. Absent such a finding, the Commission has no authority to grant the Complainant relief. Indeed, the Commonwealth Court has held that “in order for the PUC to sustain a complaint brought under [Section 1501], the utility must be in violation of its duty under this section.” *West Penn Power Co. v. Pa. PUC*, 478 A.2d 947, 949 (Pa. Cmwlth. 1984). “Without such a violation by the utility, the PUC does not have the authority, when acting upon a customer’s complaint, to require any action by the utility.” *Id.* (emphasis added) (footnote omitted). Thus, the Complainant cannot be granted any relief, including his alternative relief, in this proceeding.

Second, as the Complainant acknowledges, his alternative request for relief conflicts with the deployment schedule set forth in PPL Electric’s Commission-approved Smart Meter Plan. Specifically, PPL Electric witness Vinciguerra explained that “[t]he Company is currently in its deployment phase for the new AMI meters, which began in 2017.” (PPL St. No. 4, p. 6.) Under the Smart Meter Plan, PPL Electric is scheduled to finish its deployment of the new AMI meters in 2019. (PPL St. No. 4, p. 6; PPL Exh. DV-1, pp. 3, 32.) However, additional actions are required beyond 2019 to get the full network up and running. (PPL Exh. DV-1, pp. 3, 32.) Therefore, the Company must follow the deployment schedule in its Smart Meter Plan.

Third, in the *Smart Meter Implementation Order*,<sup>11</sup> the Commission encouraged EDCs “to expedite the deployment process if it will provide increased customer benefits in a cost effective manner.” *Smart Meter Implementation Order*, p. 14. The Commission also recognized that system-wide deployment of smart meters would involve “more than just the meter hardware attached to the customer’s premises.” *Id.*, p. 6. EDCs would need time to select the technology,

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<sup>11</sup> *Smart Meter Procurement and Installation*, Docket No. M-2009-2092655 (Order entered June 24, 2009) (“*Smart Meter Implementation Order*”).

train personnel, and deploy the entire AMI network, including any associated hardware and software. *Id.* Notably, the Commission also declared that the deployment of PPL Electric’s new RF Mesh meters “should be done sooner rather than later.” *See Petition of PPL Electric Utilities Corp. for Approval of Its Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2014-2430781, p. 36 (Order Entered Sept. 3, 2015). Thus, the Complainant’s alternative relief conflicts with these previous findings of the Commission.

Fourth, under Section 1502 of the Public Utility Code, PPL Electric cannot, “as to service, make or grant any unreasonable preference or advantage to any person.” 66 Pa. C.S. § 1502. Effectively, the Complainant is asking to be treated differently than the Company’s other customers, even if he fails to prove that the installation of the AMI meter on his property would violate Section 1501 of the Public Utility Code. To grant such relief to the Complainant in the absence of a Section 1501 violation would be an “unreasonable preference” that contravenes Section 1502 of the Public Utility Code.

Based on the foregoing, the Complainant’s Exceptions Nos. 1-25, as well as the Complainant’s alternative request for relief, 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, the Company respectfully requests that the Pennsylvania Public Utility Commission deny the Exceptions filed by Thomas Aguirre and adopt the Initial Decision without modification.

Respectfully submitted,



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