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October 5, 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: Evangeline Hoffman-Lorah v. PPL Electric Utilities Corporation
Docket No. C-2018-2644957

Dear Secretary Chiavetta:

Enclosed for filing is the Main Brief of PPL Electric Utilities Corporation 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

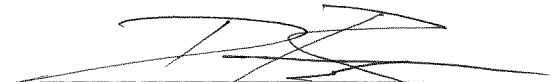
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I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

VIA FIRST CLASS MAIL

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Date: October 5, 2018



Devin T. Ryan

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Evangeline Hoffman-Lorah,	:	
	:	
Complainant,	:	
	:	
v.	:	Docket No. C-2018-2644957
	:	
PPL Electric Utilities Corporation,	:	
	:	
Respondent.	:	

**MAIN BRIEF OF
PPL ELECTRIC UTILITIES CORPORATION**

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I. INTRODUCTION

On January 29, 2018, PPL Electric Utilities Corporation (“PPL Electric” or the “Company”) was served with the above-captioned Formal Complaint filed by Evangeline Hoffman-Lorah (“Complainant”) with the Pennsylvania Public Utility Commission (“Commission”). In her Complaint, the Complainant contests PPL Electric’s planned installation of a new automated metering infrastructure (“AMI”) meter at her property, 1635 4th Street, Bethlehem, Pennsylvania.

As explained in this Main Brief, the Complainant failed to sustain her burden of proof that installing the new AMI meter on her property would constitute a violation of the Public Utility Code or any Commission regulation or order. Therefore, the Commission should dismiss the Complaint in its entirety and with prejudice.

II. STATEMENT OF THE CASE

On January 29, 2018, PPL Electric was served with the above-captioned Formal Complaint filed by the Complainant.

On February 20, 2018, PPL Electric filed its Answer to the Complaint.

On March 26, 2018, a Notice was issued scheduling a telephonic hearing for August 17, 2018, before Administrative Law Judge Elizabeth H. Barnes (the “ALJ”).

On April 4, 2018, the ALJ issued the Prehearing Order, which set forth certain procedural rules in this proceeding.

On April 23, 2018, PPL Electric filed a Motion for Admission Pro Hac Vice of Curtis S. Renner, Esquire, as additional counsel on behalf of the Company.

On April 24, 2018, the ALJ issued an Interim Order granting the Motion for Admission Pro Hac Vice.

On July 13, 2018, PPL Electric served its exhibits and its expert witnesses' written direct testimony and exhibits, in compliance with the Prehearing Order.

By later dated August 2, 2018, the Complainant served the exhibits she planned to introduce at the evidentiary hearing.

The parties engaged in discovery at various points in the proceeding before the evidentiary hearing.

On August 17, 2018, the telephonic evidentiary hearing was held as scheduled at 10:00 AM.

Also on August 17, 2018, the ALJ issued a Briefing Order setting forth requirements for the briefs to be submitted in this proceeding.

III. QUESTIONS PRESENTED

1. Whether the Complainant has failed to sustain her burden of proof that PPL Electric's installation of a new AMI meter at her premises would violate the Public Utility Code, a Commission order, or a Commission regulation.

Suggested answer: *in the affirmative.*

2. Whether the Company has a legal right to terminate a customer's service if it is denied reasonable access to the customers' premises to replace the Company-owned meter.

Suggested answer: *in the affirmative.*

IV. LEGAL STANDARDS

A. BURDEN OF PROOF

Under Section 332(a) of the Public Utility Code, 66 Pa. C.S. § 332(a), "the proponent of a rule or order has the burden of proof." It is well-established that "[a] litigant's burden of proof

before administrative tribunals as well as before most civil proceedings is satisfied by establishing a preponderance of evidence which is substantial and legally credible.” *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600, 602 (Pa. Cmwlth. 1990). The preponderance of evidence standard requires proof by a greater weight of the evidence. *Commonwealth v. Williams*, 557 Pa. 207, 732 A.2d 1167 (1999). This standard is satisfied by presenting evidence more convincing, by even the smallest amount, than that presented by another party. *Brown v. Commonwealth*, 940 A.2d 610, 614 n.14 (Pa. Cmwlth. 2008).

If the party seeking a rule or order from the Commission sets forth a *prima facie* case, then the burden shifts to the opponent. *MacDonald v. Pa. R.R. Co.*, 348 Pa. 558, 36 A.2d 492 (1944). Establishing a *prima facie* case requires either evidence sufficient to make a finding of fact permissible or evidence to create a presumption against an opponent which, if not met, results in an obligatory decision for the proponent. Once a *prima facie* case has been established, if contrary evidence is not presented, there is no requirement that the party seeking a rule or order from the Commission must produce additional evidence to sustain its burden of proof. See *Replogle v. Pa. Elec. Co.*, 54 Pa. PUC 528, 1980 Pa. PUC LEXIS 20 (Order entered Oct. 9, 1980); see also *Dist. of Columbia’s Appeal*, 21 A.2d 883 (Pa. 1941); *Application of Pennsylvania-American Water Co. for Approval of the Right To Offer, Render, Furnish or Supply Water Serv. to the Pub. in Additional Portions Of Mahoning Twp., Lawrence Cnty., Pa.*, Docket No. A-212285F0148, 2008 Pa. PUC LEXIS 874 (Order entered Oct. 29, 2008).¹

¹ In addition, any finding of fact necessary to support an adjudication of the Commission must be based upon substantial evidence. *Met-Ed Indus. Users Grp. v. Pa. PUC*, 960 A.2d 189, 193 n.2 (Pa. Cmwlth. 2008) (citing 2 Pa.C.S. § 704). Substantial evidence is such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Borough of E. McKeesport v. Special/Temporary Civil Serv. Comm’n*, 942 A.2d 274, 281 n.9 (Pa. Cmwlth. 2008) (citation omitted). Although substantial evidence must be “more than a scintilla and must do more than create a suspicion of the existence of the fact to be established,” *Kyu Son Yi v. State Bd. of Veterinary Med.*, 960 A.2d 864, 874 (Pa. Cmwlth. 2008) (citation omitted), the “presence of conflicting evidence in the record does not mean that substantial evidence is lacking.” *Allied Mech. and Elec., Inc. v. Pa. Prevailing Wage Appeals Bd.*, 923 A.2d 1220, 1228 (Pa. Cmwlth. 2007) (citation omitted).

In addition, 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*”). Rather, the person must demonstrate by a preponderance of the evidence that such exposure actually causes adverse health effects. *Id.* at *211. Specifically, in AMI meter-related matters, the Commission has held that “[t]he Complainant will have the burden of proof during the proceeding to demonstrate, by a preponderance of the evidence, that [the utility] is responsible or accountable for the problem described in the Complaint.” *Kreider v. PECO Energy Co.*, Docket No. P-2015-2495064, p. 18 (Order entered Sept. 3, 2015); *see also Romeo v. Pa. PUC*, 154 A.3d 422, 429 (Pa. Cmwlth. 2017) (finding that the smart meter complainant should have a hearing to try to prove his claim through “the testimony of others as well as other evidence that goes to that issue”).

B. APPLICABLE LEGAL STANDARDS

Section 701 of the Public Utility Code provides that “any person . . . having an interest in the subject matter . . . may complain in writing, setting forth any act or thing done or omitted to be done by any public utility in violation, or claimed violation, of any law which the commission has jurisdiction to administer, or of any regulation or order of the commission.” 66 Pa. C.S. § 701. Therefore, a complainant must generally demonstrate that the public utility violated the Public Utility Code or a Commission regulation or order.

Section 1501 of the Public Utility Code states, in pertinent part, that:

Every public utility shall furnish and maintain adequate, efficient, safe, and reasonable service and facilities, and shall make all such repairs, changes, alterations, substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public. Such service also shall be reasonably continuous and without unreasonable interruptions or delay. Such service and facilities shall be in conformity with the regulations and orders of the commission. Subject to the provisions of this part and the regulations or orders of the commission, every public utility may have reasonable rules and regulations governing the conditions under which it shall be required to render service. . . .

Id. § 1501. The Commission has exclusive jurisdiction to adjudicate “issues involving the reasonableness, adequacy, and sufficiency” of a public utility’s facilities and services. *See Elkin v. Bell of Pa.*, 420 A.2d 371, 374 (Pa. 1980) (citations omitted).

When presented with a challenge to an AMI meter installation, the Commission has pronounced that “[t]he ALJ’s role . . . will be to determine based on the record in this particular case, whether there is sufficient evidence to support a finding that the Complainant was adversely affected by the smart meter or whether [the utility’s] use of a smart meter will constitute unsafe or unreasonable service in violation of Section 1501 under the circumstances in this case.” *Kreider v. PECO Energy Co.*, Docket No. P-2015-2495064, p. 23 (Order entered Jan. 28, 2016) (citing *Woodbourne-Heaton*, 1992 Pa. PUC Lexis 160, at *12-13).

V. SUMMARY OF ARGUMENT

The Complaint should be denied in its entirety and with prejudice because the Complainant has failed to sustain her burden of proof that installing the new AMI meter would violate the Public Utility Code or any Commission regulation or order.

PPL Electric is legally required to install new AMI meters for all of its customers in accordance with Act 129 and Commission orders. The type of meter currently installed on the Complainant's property was declared by the Commission not to be compliant with Act 129 and the Commission's *Smart Meter Implementation Order*. Further, nothing in Act 129, the Commission's orders, or PPL Electric's Commission-approved Smart Meter Plan allows a customer to "opt-out" of the new AMI meter.

In addition, installing the new AMI meter would not constitute unsafe and unreasonable service. First, the Complainant has failed to demonstrate that the new AMI meter causes, contributes to, or exacerbates an illness. The Complainant did not present any expert medical or scientific testimony to support her claim that the AMI meters present a risk to human health generally or to her specifically. The Complainant submitted a number of hearsay documents as exhibits to try to prove that the new AMI meters cause adverse health effects, but those documents are not credible or competent evidence in support of her claims. None of them can support a finding of fact in this case because they were properly objected to by the Company as hearsay, they are unreliable, and they lack scientific merit.

Second, the Company's expert witnesses offered thorough and persuasive testimony that: (1) there is no reliable scientific basis to support the Complainant's claim that very low, non-thermal levels of Radio Frequency ("RF") fields from the Company's meters can or will cause any biological effects; and (2) there is no reliable medical basis to conclude that RF fields from the AMI meters cause, contribute to, or exacerbate any disease, symptoms, or illness alleged by the Complainant. Indeed, the levels of RF fields from the AMI meters being used by PPL Electric are 98,000 times lower than the levels of RF fields the Federal Communications Commission ("FCC") has designated as safe for long-term public exposures.

Third, the Complainant has failed to show that the new AMI meter is otherwise unsafe and would cause fires. The meter is composed of fire-resistant materials and has alarms designed to alert the Company if the meter's temperature reaches a certain level. The Company also has established protocols to dispatch personnel if there is an issue with the meter's temperature. Therefore, the new AMI meter can actually help prevent fires.

Fourth, the Complainant's privacy and cybersecurity concerns are unfounded. The Company collects total usage at the premises, and the usage of any individual appliance or device is indistinguishable from any other one. Through the new AMI meter, PPL Electric only collects the electric usage data required by Act 129 and the Commission's orders and about significant events, such as outages, voltage, heat alarms, and meter tampering alerts. Furthermore, PPL Electric takes the security of its customers' information very seriously and takes several steps to prevent such data from public disclosure, including encrypting the data and adhering to strict cybersecurity protocols.

Finally, although PPL Electric has never sent the Complainant a termination notice, the Company has a legal right under the Public Utility Code, the Commission's regulations, and the Company's Commission-approved tariff to terminate service if the Company is denied reasonable access to the premises to replace the meter.

For these reasons, and as further explained in detail below, the Commission should deny the Complaint with prejudice.

VI. ARGUMENT

A. BACKGROUND

On November 14, 2008, Act 129 of 2008 became effective and required electric distribution companies ("EDCs"), such as PPL Electric, to file smart meter technology

procurement and installation plans with the Commission within nine months. On June 24, 2009, the Commission issued its *Smart Meter Implementation Order*, which set forth requirements for the smart meter plans and procedures for the submission, review, and approval of the smart meter plans. See *Smart Meter Procurement and Installation*, Docket No. M-2009-2092655 (Order entered June 24, 2009) (“*Smart Meter Implementation Order*”).

On August 14, 2009, PPL Electric filed its initial Smart Meter Plan in compliance with Act 129 and the Commission’s *Smart Meter Implementation Order*. As explained in that proceeding, the Company previously deployed AMI meters and metering system between 2002 and 2004, which were a part of a power line carrier (“PLC”) metering system. See *Petition of PPL Electric Utilities Corporation for Approval of Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2009-2123945, p. 5 (Order entered June 24, 2010) (“*2010 Smart Meter Order*”). The Company contended that its existing PLC system met the requirements under Act 129 and the *Smart Meter Implementation Order*. However, the Commission ultimately held that PPL Electric’s existing PLC meters did not fully meet these requirements. See *2010 Smart Meter Order*, p. 24. Accordingly, the Commission directed PPL Electric to develop a new Smart Meter Plan that would deploy a new AMI technology that fully meets these requirements. See *id.*

On June 30, 2014, PPL Electric filed its new Smart Meter Plan intended to comply with all the requirements of Act 129 and the Commission’s *Smart Meter Implementation Order*. (See PPL Electric Exhibit No. 3) To meet those requirements, the Company proposed RF Mesh meters and metering system. PPL Electric selected this technology because the Company determined that the RF Mesh system would support the 15 capabilities required by Act 129 and the *Smart Meter Implementation Order*. (See PPL Electric Exhibit No. 3, pp. 5-6, 20-22) The

RF Mesh system allows the Company to receive data from the customer's meter wirelessly, unlike PPL Electric's previous PLC system that used the customer's actual wires. (Tr. 46-49) The individual RF Mesh meters are used as relay points to transmit data back to PPL Electric. (Tr. 48) Under the Smart Meter Plan, the RF Mesh meters would be deployed between 2017 and 2019 for all of PPL Electric's 1.4 million customers. (PPL Electric Exhibit No. 3, pp. 3, 32; Tr. 49)

On September 3, 2015, the Commission entered its Opinion and Order approving the new Smart Meter Plan, as modified, finding that unlike the Company's existing PLC meters, the new RF Mesh meters meet the requirements of Act 129 and the Commission's *Smart Meter Implementation Order*. See *Petition of PPL Electric Utilities Corp. for Approval of Its Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2014-2430781 (Order Entered Sept. 3, 2015) ("2015 Smart Meter Order").

The instant proceeding concerns PPL Electric's installation of the new RF Mesh meter pursuant to Act 129, *Smart Meter Implementation Order*, and Commission-approved Smart Meter Plan. On December 13, 2017, PPL Electric sent the Complainant a letter notifying her that it intended to install the new RF Mesh meter on her property within approximately the next three weeks. (PPL Electric Exhibit No. 2; Tr. 32) Specifically, the RF Mesh meter to be installed for the Complainant's residential account is the Landis+Gyr Focus AXR-SD meter. (Tr. 48) The Complainant then initiated the instant Formal Complaint proceeding to contest PPL Electric's planned installation of the new AMI meter for her account.

B. THE COMPLAINANT HAS FAILED TO SUSTAIN HER BURDEN OF PROOF

The Complainant has failed to sustain her burden of proof that PPL Electric would violate the Public Utility Code or any Commission regulation or order by installing the new AMI meter.

PPL Electric is legally required to install the new AMI meter by Act 129 and several Commission orders, and the Complainant has failed to prove that installing the meter would constitute unsafe and unreasonable service in violation of 66 Pa. C.S. § 1501. Therefore, the Complaint should be denied in its entirety and with prejudice.

1. PPL Electric's Installation of the New AMI Meter Is Required by Law

PPL Electric is legally required to install the RF Mesh meter on the Complainant's property by Act 129 and Commission orders. Section 2807(f) of the Public Utility Code prescribes that EDCs, like PPL Electric, must file smart meter plans and "**shall** furnish smart meter technology" in any of the following situations: (1) "[u]pon request from a customer that agrees to pay the cost of the smart meter at the time of the request"; (2) "[i]n new building construction"; and (3) "[i]n accordance with a depreciation schedule not to exceed 15 years." 66 Pa. C.S. § 2807(f)(1)-(2) (emphasis added). In interpreting the smart meter provisions of Act 129, the Commission declared that EDCs must "deploy smart meters system-wide" because of the requirement that smart meters be deployed "in accordance with a depreciation schedule not to exceed 15 years." *Smart Meter Implementation Order*, p. 14. The Commission also "recognize[d] that deployment of smart meters on a piecemeal or individual basis could involve greater costs than a systematic system-wide deployment." *Id.*, pp. 9, 14.² Therefore, PPL Electric must install the new smart meters for every customer in its service territory, including the Complainant.

² See also *Springirth v. Nat'l Fuel Gas Distrib. Corp.*, 1991 Pa. PUC LEXIS 44, at *1-3, 6, 16-17 (Order entered Apr. 12, 1991) (dismissing complaint of customer seeking to make installation of automated meter reading devices optional, noting that the Commission previously found in another case that "[t]he customer should not be given the option of refusing installation of equipment" because "[t]o permit customer discretion in this area would be inefficient and uneconomical") (quoting *Stenker v. The York Water Co.*, Docket No. C-871318 (Order entered July 27, 1987)).

In addition, nothing in Act 129 permits a customer to “opt-out” of a smart meter installation. Indeed, the Commission previously has found in several cases that Act 129 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) (footnote omitted). 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.” *Id.*; *see Frompovich v. PECO Energy Co.*, Docket No. C-2015-2474602, pp. 8-10 (Order entered May 3, 2018). Although bills have been proposed in the General Assembly to add such an opt-out (see, e.g., House Bill 1564 of 2017-2018 Session), they have not been enacted. Thus, a customer cannot opt-out of the AMI meter installation under Act 129.

Moreover, PPL Electric must comply with the relevant Commission orders directing the Company to deploy the new AMI meters. As mentioned previously, the Commission determined that the Company’s existing PLC meters are not compliant with Act 129 and the Commission’s *Smart Meter Implementation Order*. *See 2010 Smart Meter Order*, p. 24. Under the Company’s Commission-approved Smart Meter Plan, PPL Electric must replace all of the PLC meters with the RF Mesh meters, which the Commission declared as meeting all of the requirements of Act 129 and the Commission’s *Smart Meter Implementation Order*. *See 2015 Smart Meter Order*, p. 24. PPL Electric is not permitted to install any other type of meter under its Smart Meter Plan and cannot leave the existing, non-compliant PLC meter in place. (Tr. 49-50) Therefore, if the Company does not install the new RF Mesh meter on the Complainant’s residence in accordance with the Commission-approved deployment schedule,³ PPL Electric may violate the

³ In the *Smart Meter Implementation Order*, 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

Commission's *2010 Smart Meter Order*, *2015 Smart Meter Order*, and *Smart Meter Implementation Order*.

For these reasons, PPL Electric must install the new RF Mesh meter on the Complainant's residence or else the Company may violate Section 2807(f) of the Public Utility Code and the Commission's *2010 Smart Meter Order*, *2015 Smart Meter Order*, and *Smart Meter Implementation Order*.

2. Installing the New AMI Meter Would Not Constitute Unsafe or Unreasonable Service

The Complainant has failed to meet her burden of proof that installing the new AMI meter would constitute unsafe or unreasonable service. In this proceeding, the Complainant generally has alleged that the new AMI meter causes adverse health effects, causes fires, and raises privacy and cybersecurity concerns. In support of her various claims, the Complainant personally testified and presented several written exhibits. (*See, e.g.*, Complainant's Exhibits 1-26; Tr. 10-24) No other persons testified on the Complainant's behalf.

As explained in more detail below, the Complainant's claims are unsubstantiated, unreliable, and almost entirely predicated on exhibits that are hearsay and completely lack merit. In contrast, PPL Electric presented substantial, credible, and reliable evidence that wholly rebutted the Complainant's contentions. Therefore, the Complainant has failed to meet her burden of proof that installing PPL Electric's new AMI meter would be unsafe or unreasonable service in violation of Section 1501 of the Public Utility Code.

need time to select the technology, train personnel, and deploy the entire AMI network, including any associated hardware and software. *Id.* For PPL Electric, the Company's Commission-approved Smart Meter Plan states that the smart meters are to be deployed system-wide from 2017 through 2019 with additional actions beyond 2019 to get the full network up and running. (PPL Electric Exhibit No. 3, pp. 3, 32; Tr. 35) Notably, in approving the Company's Smart Meter Plan, the Commission found that the deployment of PPL Electric's new RF Mesh meters "should be done sooner rather than later." *2015 Smart Meter Order*, p. 36.

a. The Complainant Has Failed to Demonstrate that the New AMI Meter Causes, Contributes to, or Exacerbates Any Adverse Health Effect

The Complainant contends that PPL Electric should not install the new AMI meter because she has concerns that the new meter will affect her health, including her claimed symptoms of electro-hypersensitivity (“EHS”). (Tr. 11-15)

The Complainant did not offer any expert scientific or medical testimony in support of her allegations. Instead, all of her evidence on this issue consists of her own non-expert testimony and several hearsay documents, including pages from anti-smart meter and anti-EMF websites, various articles, and other documents that are not competent evidence of a link between adverse health effects and RF fields. (Tr. 10-24; Complainant’s Exhibits 1-26)

As explained in more detail below, the Complainant’s testimony and exhibits wholly fail to sustain her burden of proof that the new AMI meter causes, contributes to, or exacerbates any adverse health effects for several reasons.

i. There Is No Reliable Scientific Basis to Support the Complainant’s Allegations that the Very Low Non-Thermal RF from AMI Meters Cause Biological Effects

There is no reliable scientific basis to support the Complainant’s claim that very low, non-thermal (non-heating) levels of RF fields from the Company’s AMI meters can or will cause any biological effects.

Dr. Christopher Davis is a highly experienced scientific researcher and teacher in Physics, Electrical Engineering, Electromagnetics, and Radio Frequency Electromagnetics.⁴ Dr. Davis has a Ph.D. in Physics and is a full Professor with an endowed Chair at the University of

⁴ Dr. Davis is the Minta Martin Endowed Professor of Engineering and Professor of Electrical and Computer Engineering at the University of Maryland in College Park, Maryland. (PPL Electric Statement No. 1, p. 1, lines 9-10) He earned a BA with Honors in Natural Sciences from Trinity College at Cambridge University and a Ph.D. in Physics at the University of Manchester. (PPL Electric Statement No. 1, p. 1, lines 12-18) In this proceeding, Dr. Davis was certified as an expert in physics, biophysics, chemistry, electrical engineering, electromagnetics, bioelectromagnetics, radiofrequency bioelectromagnetics, and dosimetry. (Tr. 68)

Maryland, where for over 30 years he has taught Physics, Electrical Engineering, Electromagnetics, and RF Electromagnetics to undergraduate and graduate students. In addition to his teaching, Dr. Davis is an active scientific researcher in the fields of Physics, Biophysics, Electrical Engineering, Bioelectromagnetics and RF Bioelectromagnetics. He has conducted many scientific studies in these fields and has published over 250 studies in peer-reviewed scientific journals. (PPL Electric Statement No. 1, p. 1, line 12 to p. 2, line 19) 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 Electric Statement No. 1, p. 3, lines 5-6)

Dr. Davis 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. He has also provided expert advice on electromagnetic fields, including RF fields dosimetry and proposed mechanisms for biological effects other than heating, to the United Kingdom Health Protection Agency, the U.S. National Institutes of Health and the U.S. Food and Drug Administration's Center for Devices and Radiological Health. Dr. Davis is a Fellow of the IEEE and a Fellow of the Institute of Physics. (PPL Electric Statement No. 1, p. 3, line 7 to p. 4, line 22)

Dr. Davis explained that RF fields are part of the lower energy, non-ionizing portion of the electromagnetic spectrum, which consists of lower frequency signals that do not have enough energy to break chemical bonds in cells or DNA. (PPL Electric Statement No. 1, p. 5, line 15 to p. 6, line 6; PPL Electric Exhibit CD-1) RF fields come from many sources in our everyday environments, including AM/FM radio, television broadcast, cell phones and their

communication networks, portable phones, garage door openers and wifi networks. (PPL Electric Statement No. 1, p. 5, line 22 to p. 6, line 4; p. 14, lines 6-10; PPL Electric Exhibit CD-1)

There is nothing unusual about the RF fields from the AMI meters being deployed by the Company. (PPL Electric Statement No. 1, p. 14, lines 6-10) Dr. Davis testified that the FCC has determined safe public exposure levels for RF fields from devices that transmit RF signals, such as the AMI meters. (PPL Electric Statement No. 1, p. 9, lines 8-10) 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 Electric Statement No. 1, p. 9, line 10 to p. 10, line 18) The FCC continues to coordinate with the agencies and to consider whether new scientific research shows any adverse effects from RF fields. (PPL Electric Statement No. 1, p. 10, lines 9-10; p. 10, line 22 to p. 11, line 1)

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 Electric Statement No. 1, p. 13, lines 8-12; *see* PPL Electric 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 Electric Statement No. 1, p. 13, lines 8-10) 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 Electric Statement No. 1, p. 7, lines 21-23)

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. 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 Electric Statement No. 1, p. 14, lines 14-21) Even 30 feet away from a person using a cell phone, the RF fields are 3 times higher than from the AMI meter. (PPL Electric Statement No. 1, p. 14, lines 16-17) The Complainant reported that she used her cell phone for 5,630 minutes over a 10-month period. (PPL Electric Statement No. 1, p. 15, lines 13-20) The RF field exposure from this amount of cell phone usage is equivalent to 1,333 years of continuous RF exposure at a distance of approximately one meter from the AMI meter. (PPL Statement No. 1, p. 15, lines 18-20; PPL Electric Exhibit CD-6)

In addition, the existing background levels of RF fields at Complainant's residence are many times higher than the fields from the AMI meter. Dr. Davis testified that there are six television broadcast towers with a 50 mile radius of Complainant's location. (PPL Electric Statement No. 1, p. 15, lines 5-7) Based on the locations of each tower and their RF power outputs, the constant background level of RF fields at Complainant's residence are **92.6 times higher** than the RF signals from the AMI meter. (PPL Electric Statement No. 1, p. 15, lines 5-12; see PPL Electric Exhibit CD-5) Therefore, the un rebutted expert testimony about RF field levels in this case is that the existing and continuous background level of RF fields at Complainant's residence is many times higher than the very low and short duration RF signals from the AMI meter.

In this proceeding, Dr. Davis was recognized as an expert in Physics, Biophysics, Chemistry, Electrical Engineering, Electromagnetics, Bioelectromagnetics, and Radio Frequency Bioelectromagnetics and Dosimetry. Based on his education, training and experience in those fields of expertise, Dr. Davis concluded overall that:

1) The levels of RF fields from the AMI meters being used by PPL Electric are extremely low (98,000 times lower than the RF exposure safety limits established by the FCC). (PPL Electric Statement No. 1, p. 16, lines 16-18)

2) These extremely low level RF fields are many times lower than the RF fields people are commonly encounter from everyday sources, including the background levels of RF fields at Complainant's residence. (PPL Electric Statement No. 1, p. 16, lines 18-20)

3) There is no reliable scientific basis in physics, biophysics, bioelectromagnetics or RF bioelectromagnetics to conclude that the 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 Electric Statement No. 1, p. 16, line 21 to p. 17, line 2)

ii. There Is No Reliable Medical Basis to Support the Complainant's Allegations that the AMI Meters Cause Adverse Health Effects

There is no reliable medical basis to conclude that the new smart meter causes, contributes to, or exacerbates any illness, disease, or symptoms alleged by the Complainant.

Dr. Mark Israel⁵ is an eminent physician and medical researcher. Over the course of his 40 year medical career, he has been responsible for diagnosing and treating patients, conducting medical and biological research, and directing a major medical care center. He is Professor of Medicine, Pediatrics, and Molecular and Systems Biology at the Dartmouth Medical School and the Executive Director of the Israel Cancer Research Fund in New York, an international charitable fund for medical and scientific research programs. Previously, Dr. Israel was the Director of the Cancer Center at Dartmouth Medical School and the Dartmouth Hitchcock

⁵ Dr. Israel received his undergraduate degree from Hamilton College and his medical degree from the Albert Einstein College of Medicine. He completed his medical training at Harvard Medical School and the National Institutes of Health. (PPL Electric Statement No. 2, p. 1, lines 16-23) Dr. Israel was certified as an expert in medicine and medical research, in particular as related to RF fields and health. (Tr. 82)

Medical Center. As Director of the Cancer Center, Dr. Israel oversaw a major medical health care facility providing care to more than 5,000 new patients each year and he managed research programs with an annual budget of more than \$250 million. (PPL Electric Statement No. 2, p. 1, lines 5-14; p. 2, line 17 to p. 3, line 2)

Prior to becoming Director of the Cancer Center, Dr. Israel treated patients, taught medical students and directed a medical research laboratory at the University of California at San Francisco ("UCSF"), where he also directed the Preuss Laboratory of Molecular Neuro-oncology. Before joining UCSF, Dr. Israel spent 14 years conducting research and treating patients at the US National Institutes of Health ("NIH"), where he was the Head of the Molecular Genetics Section of the Pediatrics Branch at the National Cancer Institute and also worked in the National Institute of Allergy and Infectious Diseases. His research at the NIH identified specific genes responsible for the cause of certain childhood cancers and contributed to improvements in the diagnosis and treatment of childhood cancer, as well as early developments in the field of cancer gene therapy. (PPL Electric Statement No. 2, p. 2, lines 3-16)

Dr. Israel is board certified and licensed to practice medicine. (PPL Electric Statement No. 2, p. 3, lines 3-6) He has conducted medical research for 40 years in a wide variety of areas, including systems biology, biochemistry, cell biology, cancer, molecular biology, and molecular genetics. He has published over 245 medical research studies in leading peer-reviewed scientific journals. Dr. Israel also has taught medicine and science for more than 30 years to medical students, graduate students, interns, residents, and practicing physicians subjects in a number of fields, including endocrinology, immunology, hematology, neurology, cardiology, biochemistry, cell biology, genetics, molecular genetics, medical oncology, and radiation oncology. (PPL Electric Statement No. 2, p. 3, line 9 to p. 4, line 2)

Dr. Israel is an elected Fellow of the American Association for the Advancement of Science, an elected member of the Association of American Physicians, and an elected member of the American Society for Clinical Investigation, each of which is based on peer recognition of the scientific merit of his work and commitment to advancing medical science. He has been asked to provide scientific advice and direction to a number of organizations by serving on their advisory boards, such as the Science Advisory Board for the Yale Cancer Center, which he chaired for almost a decade, and the External Advisory Boards for the Children's Cancer Research Institute at the University of Texas Health Science Center, the University of Nebraska Eppley Cancer Center, the Carbone Cancer Center at the University of Wisconsin, and the National Brain Tumor Society, among others. He also served on the Board of Scientific Counselors for the NCI. During his work at the NCI, he was awarded two U.S. Public Health Service commendation medals. In 1998, he received the Farber Award, which is awarded annually by the American Association of Neurological Surgeons for excellence in cancer research. In 2014, he received the C. Everett Koop Courage Award for the pursuit of evidence-based medicine. (PPL Electric Statement No. 2, p. 5, lines 3-18)

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 Electric Statement No. 2, p. 13, lines 3-14) (emphasis added) Dr. Israel evaluated the few medical records produced by the Complainant in this proceeding, which were prepared by a local internist in 2018. (PPL Electric Statement No. 2, p. 7, lines 21-22) Notably, these medical records do not include any description of the internist evaluating or diagnosing electromagnetic sensitivity. (PPL Electric Statement No. 2, p. 7, line 23 to p. 8, line 1; *see, e.g.*, Complainant's Exhibit 8) The records

merely state that the patient “thinks she has EMF sensitivity” and is “concerned about EMF sensitivity.” (PPL Electric Statement No. 2, lines 22-23; Complainant’s Exhibit 8) Moreover, the medical records state that the Complainant “denies fatigue,” her rate and rhythm are “regular,” and describes her mood as “upbeat & stable.” (PPL Electric Statement No. 2, p. 8, lines 1-3; Complainant’s Exhibit 8) Further, although the Complainant alleges that her tinnitus is caused by her EHS (Tr. 18-19), the medical records reveal that she was examined by an ENT (ear/nose/throat) expert who “did not specify [a] possible cause of tinnitus.” (PPL Electric Statement No. 2, p. 8, lines 3-5; Complainant’s Exhibit 8) Thus, the Complainant’s medical records do not support her allegation that she has been diagnosed with EHS.

Dr. Israel also 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 Electric Statement No. 2, p. 13, lines 17-19) 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 Electric Statement No. 2, p. 14, lines 5-9) 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 Electric Statement No. 2, p. 14, lines 12-17) 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 Electric Statement No. 2, p. 14, lines 17-20)

In addition, 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). 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 Electric Statement No. 2, p. 15, lines 4-22; PPL Electric Exhibit MI-3) The World Health Organization has found that "There is little scientific evidence to support the idea of electromagnetic hypersensitivity." (PPL Electric Statement No. 2, p. 15, lines 17-19) 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 Electric Statement No. 2, p. 15, lines 19-21)

Further, Dr. Israel evaluated whether there is a credible scientific basis for Complainant's claim that exposure to RF fields causes or contributes to tinnitus. (PPL Electric Statement No. 2, p. 16, lines 1-14) There have been a number of studies on whether exposure to RF fields causes or contributes to tinnitus. (PPL Electric Statement No. 2, p. 16, lines 5-6) Several studies, including the Landgrebe study cited by the Complainant (Complainant's Exhibit 21), found no increase in tinnitus related to exposure to RF fields from cell phones or other sources, such as cell phone broadcast towers, cordless telephones, and wireless networks. (PPL Electric Statement No. 2, p. 16, lines 6-8) Therefore, there is no reliable scientific basis to conclude that exposure to RF fields from the AMI meters being used by PPL Electric causes or contributes to tinnitus. (PPL Electric Statement No. 2, p. 16, lines 12-14)

Dr. Israel also evaluated scientific research on RF fields and adverse health effects generally. 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 Electric Statement No. 2, p. 6, lines 7-15; p. 8, lines 8-19) He testified that 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 Electric Statement No. 2, p. 9 lines 1-5) Dr. Israel described a number of the studies in these areas which he considered good examples of well-designed and well-conducted studies. These studies found no adverse effects on genetics, fertility, reproduction, growth or development in the animals exposed to RF fields. (PPL Electric Statement No. 2, p. 9, lines 5-23) Dr. Israel also provided examples of well-conducted animal studies on RF fields and cancer. He testified that these studies, which involved animals with lifetime exposures to RF fields, did not find any increased incidence in cancer in the RF exposed animals compared to non-exposed animals. (PPL Electric Statement No. 2, p. 10, lines 1-16)

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 Electric Statement No. 2, p. 10, lines 6-9) A number of other public health authorities, including agencies in the Canada, the U.K., Sweden, Norway, the Netherlands, and New Zealand, among others, have recently reached similar conclusions. (PPL Electric Statement No. 2, p. 10, lines 12-22; PPL Electric Exhibit MI-1) In addition, several U.S. state public health authorities and Public Utility Commissions have investigated claims about health effects from smart meters. These include the Maine Center for Disease Control (2010), the

Vermont Department of Health (2012), Arizona Department of Health, Office of Environmental Health (2014), and North Carolina Department of Health and Human Services, Division of Public Health, Occupational and Environmental Epidemiology Branch (2015). These evaluations by State public health authorities and Public Utility Commissions conclude that RF fields from smart meters do not pose any public health risk. (PPL Electric Statement No. 2, p. 11, lines 1-11; PPL Electric Exhibit MI-2)

Overall, as an expert in medicine and medical research, particularly as related to RF fields and health, Dr. Israel found, based on his medical education, training and experience, and his evaluation of the scientific research, and to a reasonable degree of medical certainty, that:

1) 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 Electric Statement No. 2, p. 17, lines 3-6)

2) There is no reliable medical basis to conclude that RF fields from the AMI meter being used by PPL Electric would cause, contribute to, or exacerbate any of the symptoms claimed by the Complainant, including tinnitus, or any other adverse health effects. (PPL Electric Statement No. 2, p. 17, lines 10-12)

iii. The Complainant's Exhibits Cannot Support Any Findings of Fact

In support her allegations that the new AMI meters cause, contribute to, or exacerbate any illnesses, the Complainant submitted and relies on a number of exhibits, such as various documents, articles, and letters. (*See* Complainant's Exhibits 1-4, 6-26) None of these documents can support any findings of fact because they are hearsay and lack scientific and evidentiary merit.

First, many of the documents should not be relied upon by the ALJ because they are hearsay and are not subject to a hearsay exception. Specifically, the Complainant has presented many exhibits that were not written by her and were offered to prove the truth of the matter asserted. (See Complainant's Exhibits 1-4, 6-26) None of the authors of these statements were presented as witnesses to authenticate the veracity of their contents. Therefore, the documents are hearsay.

Under Pennsylvania's "Walker Rule," it is well-established that "[h]earsay evidence, properly objected to, is not competent evidence to support a finding." *Walker v. Unemployment Comp. Bd. of Review*, 367 A.2d 366, 370 (Pa. Cmwlth. 1976) (citations omitted). Even if hearsay evidence is "admitted without objection," the ALJ must give the evidence "its natural probative effect and may only support a finding . . . if it is corroborated by any competent evidence in the record;" as "a finding of fact based solely on hearsay will not stand." *Id.* at 370 (citations omitted).⁶

Here, PPL Electric objected to these documents because they are hearsay and not subject to a hearsay exception. (Tr. 20-21) Although these exhibits were admitted into the record (Tr. 21),⁷ the exhibits should not be used to support any findings of fact. Indeed, PPL Electric has a statutory right to cross-examine persons "as may be required for a full and true disclosure of the facts." 66 Pa. C.S. § 332(c). Because the authors of these hearsay statements did not testify, the Company was denied this right and unable to test the veracity of their statements. It is for this reason such hearsay is generally inadmissible and should not be relied upon in this proceeding.⁸

⁶ The "Walker Rule" has been affirmed by the Pennsylvania Supreme Court. *Rox Coal Co. v. Workers' Comp. Appeal Bd. (Snizaski)*, 570 Pa. 60, 807 A.2d 906 (2002).

⁷ PPL Electric continues to maintain that these exhibits should not have been admitted into the record because they are hearsay and not subject to a hearsay exception.

⁸ The Company notes that expert witnesses can rely on hearsay in forming their opinions, where such material is of a type customarily relied on by experts in their profession. See *Lower Makefield Twp. v. Lands of Dalgewicz*, 4 A.3d 1114, 1122 (Pa. Cmwlth. 2010), *affirmed*, 67 A.3d 772 (Pa. 2013); *Collins v. Cooper*, 746 A.2d

Moreover, even assuming *arguendo* that the evidence was not properly objected to, the Complainant has presented no “competent evidence” to corroborate those statements. *Walker* at 370. As explained in more detail below, the exhibits contain many flaws and mischaracterizations and cannot be used to form a reliable opinion. Therefore, as the Commission has previously held, “[w]hether the ALJ erred by initially admitting the hearsay evidence is an issue we need not address” because “[e]ven if such evidence can be admitted, it is clear that . . . such evidence may not be given any weight in an administrative proceeding.” *Anserphone, Inc. & Elite Answering Serv. v. The Belle Tele. Co. of Pa.*, 1993 Pa. PUC LEXIS 70, at *29-30 (Order entered April 1, 1993). Thus, the Complainant’s hearsay documents cannot support a finding of fact that the new AMI meters cause, contribute to, or exacerbate any illnesses.

Second, the Complainant’s exhibits about alleged health effects of RF fields completely lack scientific and evidentiary merit, and should be afforded no weight. Specifically, these exhibits contain the following flaws and mischaracterizations:

- Exhibit 1 – Select medical record of the Complainant from Yevelson Internal Medicine, P.C. dated July 16, 2018.
 - The medical record contains no actual diagnosis of EHS or that the RF field exposure is the cause of her symptoms. The document also lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21)
- Exhibit 2 – A blog entry from “Sandra’s Blog” titled, “A Constant, Non Stop ‘Pulsed’ Low Radio Frequency Hum and Drone Radiating from Global Smart Grid Mesh Network!”

615, 618 (Pa. Super. 2000); *Primavera v. Celotex Corp.*, 608 A.2d 515, 520-21 (Pa. Super. 1992); Pa.R.E. 703. However, the Complainant is not an expert witness, and she presented no expert witnesses, let alone ones who could rely on these materials. Moreover, although hearsay statements, such as articles, studies, and treatises, can be relied upon by expert witnesses in forming their opinions, the substance of those hearsay statements is not permitted to be entered into the record to prove the truth of the matter asserted. See *Klein v. Aronchick*, 85 A.3d 487, 503-04 (Pa. Super. 2014) (citing *Aldridge v. Edmunds*, 750 A.2d 292, 297-98 (Pa. 2000)); *Nigro v. Remington Arms Co.*, 637 A.2d 983, 993 (Pa. Super. 1993) (citations omitted).

- The exhibit is inherently unreliable because it is a blog entry from an activist website entitled “Sandaura’s Blog.” Further, the document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91) Further, the document is inherently unreliable because it only contains five of the document’s 53 pages. (Complainant’s Exhibit 2)
- Exhibit 3 – A blog entry from “Sandaura’s Blog” titled, “German Study Confirms Hum Source Radiating on the AMI (Automated Metering Infrastructure).”
 - The exhibit is inherently unreliable because it is a blog entry from an activist website entitled “Sandaura’s Blog.” Moreover, the document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Additionally, several allegations in the exhibit have no applicability to the Company’s new AMI meter. For example, the exhibit states that “ELF frequencies,” meaning “extremely low frequencies,” are a cause of the hum these persons allegedly hear. (Complainant’s Exhibit 3 at 1) However, PPL Electric’s expert witness, Dr. Christopher Davis, testified that the Company’s new AMI meters do not emit or transmit ELF frequencies. (Tr. 69-70) Similarly, the exhibit alleges that other sources of the alleged humming noise can be transmissions at 217 Hertz or the use of a “Global System for Mobiles” (“GSM”). (Complainant’s Exhibit 3 at 3) But Dr. Davis testified that the new AMI meters do not transmit at 217 Hertz or use a GSM (Tr. 71-72). Finally, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91)
- Exhibit 4 – An article from *NaturalNews.com* titled, “Evidence is UNDENIABLE: Smart meters cause massive changes to the heart,” by Ethan Huff that is dated July 25, 2018.
 - The document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91)
- Exhibits 6 and 7 – Statements by Timothy Lorah and Nancy Lorah
 - The documents lack authenticity because the documents’ authors were not presented to authenticate the accuracy of the factual statements in the documents. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that these documents could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91)
- Exhibit 8 – Select medical records of the Complainant from Yvelson Internal Medicine, P.C., and The Head and Neck Center, P.C.

- The medical records contain no actual diagnosis of EHS or that the RF field exposure is the cause of her symptoms. As explained by Dr. Israel, “[t]hese records state that the patient ‘thinks she has EMF sensitivity’ and is ‘concerned about EMF sensitivity.’” (PPL Electric Statement No. 2, p. 7, lines 22-23) However, the medical records “do not include any description of the internist evaluating or diagnosing electromagnetic sensitivity.” (PPL Electric Statement No. 2, p. 7, line 23 to p. 8, line 1) The medical records also provide that the Complainant “denies fatigue, that “her heart rate and rhythm is ‘regular,’” and that “her mood [is] ‘upbeat & stable.’” (PPL Electric Statement No. 1, p. 8, lines 1-3) Further, the records state that the Complainant “was examined by an ENT (ear/nose/throat) expert who ‘did not specify possible cause of tinnitus.’” (PPL Electric Statement No. 2, p. 8, lines 3-5) The document also lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21)
- Exhibit 9 – A document titled, “Review of Health Issues Related to Smart Meters,” by the Monterey County Health Department that is dated March 2011.
 - The document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91) Further, the exhibit actually contradicts the Complainant’s allegations. The exhibit states in bold lettering that “there is no consistent or convincing evidence of causal links between non thermal RF exposure and any adverse health effects, including cancer, cardiovascular disease, adverse reproductive outcome, and cataracts” and “specifically mobile phone use or mobile phone base stations and cancer.” (Complainant’s Exhibit 9 at 3) Lastly, the exhibit notes that “[i]n general, adverse health outcomes found by some studies were not able to be replicated by subsequent studies or the results were questioned due to poor study design.” (Complainant’s Exhibit 9 at 3)
- Exhibit 10 – A blog entry titled, “World Health Organization: Smart Meters Are Making People Ill,” by Baxter Dmitry that is dated March 14, 2017.
 - The document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91) Further, the document is inherently unreliable because it only contains two of the document’s four pages. (Complainant’s Exhibit 10) Additionally, the document fails to recognize that the WHO has concluded that “no adverse health effects have been established as being caused by mobile phone use.” (PPL Electric Statement No. 2, p. 10, lines 6-9) In addition, several U.S. state public health authorities and Public Utility Commissions have investigated claims about health effects from smart meters. And have concluded that RF fields from smart meters do not pose any public health risk. (PPL Electric Statement No. 2, p. 11, lines 1-11; PPL Electric Exhibit MI2)

- Exhibit 11 – A document titled, “World Health Organization: International EMF Project,” that is dated June 6, 2012.
 - The document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91) Further, the exhibit actually contradicts the Complainant’s allegations. The exhibit states that the “WHO has updated the Fact Sheet on mobile phones which notes that no effect of RF fields has been established.” (Complainant’s Exhibit 11 at 3; *see* Tr. 107)
- Exhibit 12 – A document titled, “Wireless devices-potential cancer risk says World Health Organization,” from the website *EMF Safety Network*.
 - The document is inherently unreliable because it is from an activist website. (Complainant’s Exhibit 12 at 1) The document also lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91) In addition, neither the WHO nor its agency, the IARC, has concluded that RF fields from AMI meters can cause cancer. (PPL Electric Statement No. 2, p. 12, lines 4-6) Indeed, IARC convened a group in 2011, which found that RF fields from mobile phones were “possibly carcinogenic” based on what it described as “limited evidence,” but did not find that RF fields from mobile phones were either “carcinogenic” or even “probably carcinogenic” under the IARC classification system. (PPL Electric Statement No. 2, p. 12, lines 7-11) The WHO reviewed the IARC’s findings and concluded that “[t]o date, no adverse health effects have been established as being caused by mobile phone use.” (PPL Electric Statement No. 2, p. 12, lines 15-20)
- Exhibit 13 – A document titled, “Smart Meters,” by the American Cancer Society.
 - The document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91) Further, the document states that “it isn’t clear what risk, if any there might be from living in a home with a smart meter” and that “it is very unlikely that living in a house with a smart meter increases risk of cancer.” (Complainant’s Exhibit 13 at 2) Lastly, the document is inherently unreliable because it only contains three of the document’s five pages. (Complainant’s Exhibit 10)
- Exhibit 14 – A document titled, “Stop Smart Meters!” from the website *StopSmartMeters.org*.

- The document is inherently unreliable because it is from an activist website and only contains four of the document's 33 pages. (Complainant's Exhibit 14) The document also lacks authenticity because the document's author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not "provide a scientific or medical basis for reaching subsequent conclusions." (Tr. 91) The document also contains several inaccurate statements, such as AMI meters transmit RF signals "24/7." (Complainant's Exhibit 14 at 3) In actuality, Dr. Davis testified that the Company's new AMI meter only transmits RF signals for a total of 84 seconds over the course of 24 hours, with individual signal durations of only 46 to 63 milliseconds. (PPL Electric Statement No. 1, p. 7, lines 21-23)
- Exhibit 15 – A document titled, "Nerve disrupting frequencies radiating from 'smart' meters," by an unidentified author.
 - The document lacks authenticity because the document's author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not "provide a scientific or medical basis for reaching subsequent conclusions." (Tr. 91)
- Exhibit 16 – A document titled, "Frequencies Known to Cause Nerve Block," by an unidentified author.
 - The document lacks authenticity because the document's author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not "provide a scientific or medical basis for reaching subsequent conclusions." (Tr. 91)
- Exhibit 17 – An article titled, "Radiofrequency Radiation: The Invisible Hazards of 'Smart' Meters," by Dr. Ilya Sandra Perlingieri that is dated August 19, 2011.
 - The article lacks authenticity because the article's author was not presented to authenticate the accuracy of the factual statements in the article. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this article could not "provide a scientific or medical basis for reaching subsequent conclusions." (Tr. 91) Indeed, the article is not a scientific study, nor was it published in a peer-reviewed scientific journal. (Tr. 91) Lastly, the document is inherently unreliable because it only contains five of the document's seven pages. (Complainant's Exhibit 17)
- Exhibit 18 – A document titled, "The Alarming Ways EMFs are Changing your Brain," by Deane Alban.
 - The document lacks authenticity because the document's author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not "provide a scientific or medical basis for reaching subsequent conclusions." (Tr. 91)

Further, the document is not a scientific study, nor was it published in a peer-reviewed scientific journal. (Tr. 91)

- Exhibit 19 – A document titled, “Smart Meter Health Complaints,” by an unidentified author.
 - The document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91) Furthermore, nothing in the record establishes that the AMI meters referenced in the document and allegedly installed in California and Australia are of the same make and model as the Company’s new AMI meter.
- Exhibits 20, 23, and 24 – Various documents written by Catherine Frompovich.
 - Complainant’s Exhibit 20 is inherently unreliable because it is from an activist website. All of the documents also lack authenticity because the documents’ author was not presented to authenticate the accuracy of the factual statements in the documents. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that these documents could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91) Further, the Company notes that the Commission rejected Ms. Frompovich’s arguments and ultimately denied her Formal Complaint. *See Frompovich v. PECO Energy Co.*, Docket No. C-2015-2474602 (Order entered May 3, 2018).
- Exhibit 21 – A study titled, “Association of Tinnitus and Electromagnetic Hypersensitivity: Hints for a Shared Pathophysiology?” by Michael Landgrebe, *et al.*
 - The document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, the document is inherently unreliable because it only contains eight of the document’s 11 pages. (Complainant’s Exhibit 10) In addition, the document actually contradicts the Complainant’s allegations, as it concludes that that “there is no hint for a relationship between tinnitus and exposure to electromagnetic fields.” (Complainant’s Exhibit 21 at 8)
- Exhibit 22 – A document titled, “EKG proof – Smart meters damage your heart,” by Lori Alton from the website *NaturalHealth365.com*.
 - The document lacks authenticity because the document’s author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not “provide a scientific or medical basis for reaching subsequent conclusions.” (Tr. 91)
- Exhibit 26 – A document titled, “Other Smart Meter Information,” by an unidentified author.

- The document lacks authenticity because the document's author was not presented to authenticate the accuracy of the factual statements in the document. (Tr. 20-21) Moreover, Dr. Mark Israel, a medical expert, testified that this document could not "provide a scientific or medical basis for reaching subsequent conclusions." (Tr. 91)

Finally, concerning the Complainant's allegations that she experiences symptoms when in the presence of AMI meters (see Complainant's Exhibit 5), the record demonstrates that the Complainant only experiences symptoms when she believes she is in the presence of AMI meters. Indeed, the Complainant testified that she would experience these symptoms when she is at home or at her daughter's property, on the basis that the Company's new AMI meters were installed in her neighborhood and her daughter's neighborhood. (Tr. 15, 19-20; Complainant's Exhibit 5) When she has been away from those areas, she claimed her symptoms would dissipate. (Tr. 19-20; Complainant's Exhibit 5)

However, the daughter's neighborhood is located in Port Clinton, Pennsylvania. (Tr. 39-40) The record demonstrates that the Company has not installed any new AMI meters in Port Clinton. (Tr. 40) Therefore, contrary to the Complainant's belief, she has not been exposed to the Company's new AMI meter when she visits her daughter. The Complainant's experiences are consistent with those observed in recent reliable study, which, as noted previously, found 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 Electric Statement No. 2, p. 14, lines 17-20) Thus, the Complainant's summary of experienced symptoms cannot support a finding that the Company's new AMI meters cause, contribute to, or exacerbate adverse health effects.

For these reasons, the Complainant's exhibits lack merit, should be afforded no weight, and cannot support any findings of fact in this proceeding.

Based on the foregoing, the Complainant has failed to sustain her burden of proof that PPL Electric's new AMI meter causes, contributes to, or exacerbates any disease, symptom or illness.

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

The Complainant also alleges that the new AMI meter is unsafe and would cause fires because, according to her, there have been other incidents where AMI meters have caused fires. (Complainant's Exhibits 22 and 24; Tr. 14) The Complainant's allegations that the new AMI meter is unsafe and would cause fires lack merit for several reasons.

First, the new AMI meters actually are equipped with software and mechanisms that better alert the Company if there is an issue with overheating. Specifically, there is a heat alarm set within the meter software program, so when the temperature of the meter hits an established level of 85 degrees Celsius, the Company is alerted of the issue. (Tr. 56-57) 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. (Tr. 56) If the Company detects an issue with the meter's temperature, PPL Electric can then dispatch a technician to investigate. (Tr. 56) Notably, the Complainant's current meter does not have the ability to transmit its temperature to PPL Electric. (Tr. 57) Thus, the new AMI meter is actually better equipped to help prevent a fire. (Tr. 56-57)

Second, PPL Electric has examined the issues with other meters and taken many steps to prevent fire incidents similar to the ones alleged by the Complainant. (Tr. 52-54) PPL Electric witness Larson testified that the root cause of a many of these fires was loose connections within the meter base. (Tr. 54) When there are loose connections within the meter base, there could be rapid heat built up. (Tr. 54) PPL Electric has taken several steps to mitigate this risk. The

Company consulted with several other utilities and enhanced its inspection criteria so that its service technicians and contractors are better able to identify any issues. (Tr. 54-56) The Company also monitors the meter's temperature in 15-minute intervals. (Tr. 56) Further, the new AMI meters meet the standards and certifications issued by the American National Standards Institute ("ANSI") and Underwriters Laboratories ("UL"). (Tr. 53)

In addition, PPL Electric set stringent qualifications during its testing and selection of the available RF Mesh meters. (Tr. 52-53) Among those qualifications was a requirement that AMI meter's materials be able to withstand a thermal index of 160 degrees Celsius before breaking down. (Tr. 52) Indeed, PPL Electric utilized a third party independent lab to evaluate all of the meters on the market and determine if they would breakdown at 160 degrees Celsius. (Tr. 52-53) The AMI meter selected by PPL Electric was the only meter that met the Company's stringent testing and standards. (Tr. 53) More importantly, PPL Electric has deployed approximately 928,000 new AMI meters in its service territory, and Mr. Larson is aware of no fires being caused by the Focus AXR-SD meter. (Tr. 57-58)

Third, the Complainant's fire risk claims are entirely predicated on hearsay. (*See, e.g.*, Complainant's Exhibits 22 and 24) As explained on the record at the proceeding, the Complainant's exhibits contain hearsay statements that are being submitted to try to prove that the new AMI meters are fire risks. (Tr. 20) These hearsay statements are not subject to a hearsay exception, were properly objected to, and are not corroborated by anything in the record. Therefore, as explained previously, such exhibits cannot support any finding of fact in this case.

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

c. The Complainant Has 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. (Complainant's Exhibit 25; Tr. 14) The Company's testimony demonstrated that the Complainant's privacy and cybersecurity concerns are without merit.

First, PPL Electric witness Larson 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. (Tr. 34-35, 50-51) The Company uses firewalls to prevent anyone from obtaining unauthorized access to the AMI network. (Tr. 34, 50-51) The customer's data also is encrypted to make the data only readable to Company personnel who can decode the encryption. (Tr. 34-35, 50-51) At the meter, the Company utilizes several levels of randomized passwords that meet national standards of 20 digits fully randomized. (Tr. 50) Rules and procedures also are in place to control Company personnel's access to the data. (Tr. 35, 50) Specifically, the Company "use[s] authentication and digital signatures" as well as "access controls," which require the input of passwords that must be changed on a regular basis. (Tr. 35) As a result, only the Company's designated personnel have access to the data. (Tr. 35) Further, cybersecurity and data privacy were addressed at length in PPL Electric's Smart Meter Plan (see PPL Electric Exhibit No. 3), and the Company's cybersecurity policies and practices are consistent with the national standards for the industry. (Tr. 51)

Second, the new AMI meter cannot tell if a customer is using a particular appliance. (Tr. 33-34) As PPL Electric witness Hennegan explained, "[T]here's no tagging in the data that says this piece of information is coming from this specific appliance." (Tr. 34) Indeed, PPL Electric measures the total electric usage of the premises. (Tr. 34) Moreover, 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. (Tr. 33; PPL Electric Exhibit No. 5) 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. (Tr. 33; PPL Electric Exhibit No. 5, Section 1.2)

Third, the Complainant's allegations of cybersecurity and privacy concerns are based on Complainant's Exhibit 25. As with most of the Complainant's other exhibits, Exhibit 25 is uncorroborated hearsay and cannot support any findings of fact in this matter. (Tr. 21) Moreover, the exhibit concerns cybersecurity generally and is not specific to AMI meters. (See Complainant's Exhibit 25) Further, the exhibit, at most, supports the use of adequate procedures to help protect against the unauthorized disclosure or access of customer data. As explained previously, the Company has established several cybersecurity and privacy protocols and practices, and cybersecurity was a cornerstone of PPL Electric's Smart Meter Plan.

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

3. Conclusion

Based on the foregoing, the Complainant has failed to sustain her burden of proof that installing the new AMI meter would constitute a violation of the Public Utility Code or any Commission regulation or order. Accordingly, the Complaint should be denied in its entirety and with prejudice.

C. PPL ELECTRIC HAS A LEGAL RIGHT TO TERMINATE SERVICE IF IT IS DENIED REASONABLE ACCESS TO ITS METER

An issue also has been raised regarding whether the Complainant's electric service can be terminated for denying the Company access to replace the existing meter. (Tr. 9)

PPL Electric has a legal right to terminate the Complainant's service if it is denied reasonable access to the Company's meter. Rule 2F of the Company's Commission-approved tariff states that PPL Electric "shall have access at all reasonable hours to customer's premises, without charge, or the purpose of inspecting, installations, installing meters, reading, testing, removing, replacing, or otherwise maintaining or disposing of any of Company's property." (PPL Electric Exhibit No. 6) (emphasis added) It is well-established that public utilities' tariffs have the force and effect of law and are binding on the utilities and their customers. *See PPL Elec. Utils. Corp. v. Pa. PUC*, 912 A.2d 386, 402 (Pa. Cmwlth. 2006) (citing 66 Pa. C.S. § 1303 and *Pa. Elec. Co. v. Pa. PUC*, 663 A.2d 281, 284 (Pa. Cmwlth. 1995)). Therefore, the Complainant must grant the Company reasonable access to the property to replace the existing meter.

In fact, the Company would be expressly permitted to terminate service if it is prevented from replacing the meter. *See* 66 Pa. C.S. § 1406(a)(4); 52 Pa. Code § 56.81(3); (PPL Electric Exhibit No. 7). Both the Public Utility Code and the Commission's regulations provide that "[f]ailure to permit access to meters, service connections or other property of the public utility for the purpose of replacement, maintenance, repair or meter reading" is grounds for terminating service. *See* 66 Pa. C.S. § 1406(a)(4); 52 Pa. Code § 56.81(3). Moreover, Rule 10(B)(2)(g) of PPL Electric's tariff similarly states that the Company is authorized to terminate service when: (1) its "representatives cannot gain admittance or are refused admittance to the premises for the purpose of reading meters, making repairs, making inspections, or removing Company

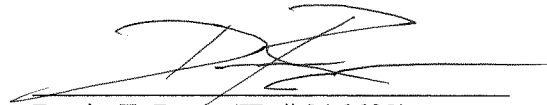
property”; (2) “the customer interferes with Company representatives in the performance of their duties; or (3) “the meters or other equipment of the Company are not accessible during reasonable hours.” (PPL Electric Exhibit No. 7, p. 2)

For these reasons, even though PPL Electric never sent the Complainant a notice of termination, the Company has a legal right to terminate service if it is prevented from reasonably accessing its meter to install a new meter or replace an existing one.

VII. CONCLUSION

WHEREFORE, PPL Electric Utilities Corporation respectfully requests that Administrative Law Judge Elizabeth H. Barnes recommend and the Pennsylvania Public Utility Commission deny the Formal Complaint of Evangeline Hoffman-Lorah with prejudice.

Respectfully submitted,



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Date: October 5, 2018

Attorneys for PPL Electric Utilities Corporation

APPENDIX A

Appendix A – Proposed Findings of Fact

1. On June 30, 2014, PPL Electric Utilities Corporation (“PPL Electric” or the “Company”) filed its new Smart Meter Plan intended to comply with all the requirements of Act 129 and the Pennsylvania Public Utility Commission’s (“Commission”) *Smart Meter Implementation Order*. (See PPL Electric Exhibit No. 3)

2. To meet those requirements, the Company selected Radio Frequency (“RF”) Mesh meters and metering system because the Company determined that the RF Mesh system would support the 15 capabilities required by Act 129 and the *Smart Meter Implementation Order*. (See PPL Electric Exhibit No. 3, pp. 5-6, 20-22)

3. The RF Mesh system allows the Company to receive data from the customer’s meter wirelessly, unlike PPL Electric’s previous powerline carrier (“PLC”) system that used the customer’s actual wires. (Tr. 46-49)

4. The individual RF Mesh meters are used as relay points to transmit data back to PPL Electric. (Tr. 48)

5. Under the Smart Meter Plan, the RF Mesh meters are to be deployed between 2017 and 2019 for all of PPL Electric’s 1.4 million customers. (PPL Electric Exhibit No. 3, pp. 3, 32; Tr. 49)

6. The Company currently is in the process of deploying the RF Mesh meters for all of its customers pursuant to its Commission-approved Smart Meter Plan. (Tr. 49; PPL Electric Exhibit No. 3)

7. On December 13, 2017, PPL Electric sent the Complainant a letter notifying her that it intended to install the new RF Mesh meter on her property within approximately the next three weeks. (PPL Electric Exhibit No. 2; Tr. 32)

8. The RF Mesh meter to be installed for the Complainant's residential account is the Landis+Gyr Focus AXR-SD meter. (Tr. 48)

9. The Complainant contests PPL Electric's planned installation of the new AMI meter at her property, 1635 4th Street, Bethlehem, Pennsylvania. (Tr. 11-15)

10. The Complainant generally has alleged that the new AMI meter causes adverse health effects, causes fires, and raises privacy and cybersecurity concerns. In support of her various claims, the Complainant personally testified and presented several written exhibits. (*See* Complainant's Exhibits 1-26; Tr. 10-24)

11. The Complainant contends that PPL Electric should not install the new AMI meter because she has concerns that the new meter will affect her health, including her claimed symptoms of electro-hypersensitivity ("EHS"). (Tr. 11-15)

12. All of the Complainant's evidence on this issue consists of her own non-expert testimony and several hearsay documents, including pages from anti-smart meter and anti-EMF websites, various articles, and other documents that are not competent evidence of a link between adverse health effects and Radio Frequency ("RF") fields. (Tr. 10-24; Complainant's Exhibits 1-26)

13. Dr. Christopher Davis is a highly experienced scientific researcher and teacher in Physics, Electrical Engineering, Electromagnetics, and RF Electromagnetics. (PPL Electric Statement No. 1, p. 1, line 12 to p. 5, line 5)

14. 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 Electric Statement No. 1, p. 1, line 9 to p. 2, line 8)

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, conducting many scientific studies in these fields and publishing over 250 studies in peer-reviewed scientific journals. (PPL Electric Statement No. 1, p. 2, lines 10-19)

16. In particular, Dr. Davis has conducted a substantial amount of research on RF fields of the type produced by the AMI meters being used by the Company. (PPL Electric Statement No. 1, p. 3, lines 5-6)

17. Dr. Davis explained that RF fields are part of the lower energy, non-ionizing portion of the electromagnetic spectrum which consists of lower frequency signals that do not have enough energy to break chemical bonds in cells or DNA. (PPL Electric Statement No. 1, p. 5, line 15 to p. 6, line 6)

18. There is nothing unusual about the RF fields from the AMI meters being deployed by the Company. (PPL Electric Statement No. 1, p. 14, lines 6-10)

19. RF fields come from many sources in our everyday environments, including AM/FM radio, television broadcast, cell phones and their communication networks, portable phones, garage door openers and wifi networks. (PPL Electric Statement No. 1, p. 5, line 22 to p. 6, line 4; p. 14, lines 6-10; PPL Electric Exhibit CD-1)

20. Dr. Davis testified that the FCC has determined safe public exposure levels for RF fields from devices that transmit RF signals, such as the AMI meters. (PPL Electric Statement No. 1, p. 9, lines 8-10)

21. 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 Electric Statement No. 1, p. 9, line 10 to p. 10, line 18)

22. 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 Electric Statement No. 1, p. 13, lines 8-12; *see* PPL Electric Exhibit CD-2)

23. 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 Electric Statement No. 1, p. 13, lines 8-10)

24. 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 Electric Statement No. 1, p. 7, lines 21-23)

25. Dr. Davis also testified that 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 Electric Statement No. 1, p. 14, lines 14-21)

26. Even 30 feet away from a person using a cell phone, the RF fields are 3 times higher than from the AMI meter. (PPL Electric Statement No. 1, p. 14, lines 16-17)

27. The Complainant reported that she used her cell phone for 5,630 minutes over a 10-month period. (PPL Electric Statement No. 1, p. 15, lines 13-20)

28. The RF field exposure from this amount of cell phone usage is equivalent to 1,333 years of continuous RF exposure at a distance of approximately one meter from the AMI meter. (PPL Statement No. 1, p. 15, lines 18-20; PPL Electric Exhibit CD-6)

29. Dr. Davis testified that there are six television broadcast towers with a 50 mile radius of Complainant's location. (PPL Electric Statement No. 1, p. 15, lines 5-7)

30. Based on the locations of each tower and their RF power outputs, the constant background level of RF fields at Complainant's residence are 92.6 times higher than the RF signals from the AMI meter. (PPL Electric Statement No. 1, p. 15, lines 5-12; *see* PPL Electric Exhibit CD-5)

31. There is no reliable scientific basis in physics, biophysics, bioelectromagnetics or RF bioelectromagnetics to conclude that the 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 Electric Statement No. 1, p. 16, line 21 to p. 17, line 2)

32. Dr. Mark Israel is an eminent physician and medical researcher. (PPL Electric Statement No. 2, p. 1, line 5 to p. 6, line 18)

33. Dr. Israel received his undergraduate degree from Hamilton College and his medical degree from the Albert Einstein College of Medicine, and he completed his medical training at Harvard Medical School. (PPL Electric Statement No. 2, p. 1, lines 16-20)

34. Dr. Israel is Professor of Medicine, Pediatrics, and Molecular and Systems Biology at the Dartmouth Medical School and the Executive Director of the Israel Cancer Research Fund in New York, an international charitable fund for medical and scientific research programs. (PPL Electric Statement No. 2, p. 1, lines 11-14)

35. Dr. Israel is board certified and licensed to practice medicine. (PPL Electric Statement No. 2, p. 3, lines 3-6)

36. Dr. Israel has conducted medical research for 40 years in a wide variety of areas, including systems biology, biochemistry, cell biology, cancer, molecular biology, and molecular

genetics and has published over 245 medical research studies in leading peer-reviewed scientific journals. (PPL Electric Statement No. 2, p. 3, line 9 to p. 4, line 2)

37. Dr. Israel also has taught medicine and science for more than 30 years to medical students, graduate students, interns, residents, and practicing physicians subjects in a number of fields, including endocrinology, immunology, hematology, neurology, cardiology, biochemistry, cell biology, genetics, molecular genetics, medical oncology, and radiation oncology. (PPL Electric Statement No. 2, p. 3, lines 14-17)

38. Dr. Israel evaluated scientific research on RF fields and adverse health effects and testified that he has been systematically examining this research over the past several decades and that many hundreds of studies have been published. (PPL Electric Statement No. 2, p. 6, lines 7-15; p. 8, lines 8-19)

39. Dr. Israel testified that 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 Electric Statement No. 2, p. p. 9 lines 1-5)

40. Dr. Israel described a number of the studies in these areas which he considered good examples of well-designed and well-conducted studies. These studies found no adverse effects on genetics, fertility, reproduction, growth or development in the animals exposed to RF fields. (PPL Electric Statement No. 2, p. 9, lines 5-23)

41. Dr. Israel also provided examples of well-conducted animal studies on RF fields and cancer and testified that these studies, which involved animals with lifetime exposures to RF fields, did not find any increased incidence in cancer in the RF exposed animals compared to non-exposed animals. (PPL Electric Statement No. 2, p. 10, lines 1-16)

42. 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 Electric Statement No. 2, p. 13, lines 3-14) (emphasis added)

43. Dr. Israel evaluated the few medical records produced by the Complainant in this proceeding, which were prepared by a local internist in 2018. (PPL Electric Statement No. 2, p. 7, lines 21-22)

44. Notably, these medical records do not include any description of the internist evaluating or diagnosing electromagnetic sensitivity. (PPL Electric Statement No. 2, p. 7, line 23 to p. 8, line 1; *see, e.g.*, Complainant’s Exhibit 8)

45. The records merely state that the patient “thinks she has EMF sensitivity” and is “concerned about EMF sensitivity.” (PPL Electric Statement No. 2, lines 22-23; Complainant’s Exhibit 8)

46. Further, although the Complainant alleges that her tinnitus is caused by her EHS (Tr. 18-19), the medical records reveal that she was examined by an ENT (ear/nose/throat) expert who “did not specify [a] possible cause of tinnitus.” (PPL Electric Statement No. 2, p. 8, lines 3-5; Complainant’s Exhibit 8)

47. Dr. Israel evaluated the scientific research on IEI and testified 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 Electric Statement No. 2, p. 13, lines 17-19)

48. In addition, Dr. Israel testified that 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). 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 Electric Statement No. 2, p. 15, lines 4-22; PPL Electric Exhibit MI-3)

49. Dr. Israel further reported that the World Health Organization and a number of 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 Electric Statement No. 2, p. 10, lines 6-22; PPL Electric Exhibit MI-1)

50. 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 Electric Statement No. 2, p. 11, lines 1-11; PPL Electric Exhibit MI-2)

51. Dr. Israel evaluated whether there is a credible scientific basis for Complainant's claim that exposure to RF fields causes or contributes to tinnitus. (PPL Electric Statement No. 2, p. 16, lines 1-14)

52. There have been a number of studies on whether exposure to RF fields causes or contributes to tinnitus. (PPL Electric Statement No. 2, p. 16, lines 5-6)

53. Several studies, including the Landgrebe study cited by the Complainant (Complainant's Exhibit 21), found no increase in tinnitus related to exposure to RF fields from

cell phones or other sources, such as cell phone broadcast towers, cordless telephones, and wireless networks. (PPL Electric Statement No. 2, p. 16, lines 6-8)

54. Therefore, there is no reliable scientific basis to conclude that exposure to RF fields from the AMI meters being used by PPL Electric causes or contributes to tinnitus. (PPL Electric Statement No. 2, p. 16, lines 12-14)

55. Dr. Israel also testified that most of the Complainant's exhibits were not scientific studies, were not published in a peer-reviewed scientific journal, and did not "provide a scientific or medical basis for reaching subsequent conclusions." (Tr. 91)

56. 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 Electric Statement No. 2, p. 17, lines 3-6)

57. There is no reliable medical basis to conclude that RF fields from the AMI meter being used by PPL Electric would cause, contribute to, or exacerbate any of the symptoms claimed by the Complainant, or any other adverse health effects. (PPL Electric Statement No. 2, p. 17, lines 10-12)

58. The Complainant also alleges that the new AMI meter is unsafe and would cause fires because, according to her, there have been other incidents where AMI meters have caused fires. (Complainant's Exhibits 22 and 24; Tr. 14)

59. The Company's new AMI meters actually are equipped with software and mechanisms that better alert the Company if there is an issue with overheating. Specifically, there is a heat alarm set within the meter software program, so when the temperature of the meter hits an established level of 85 degrees Celsius, the Company is alerted of the issue. (Tr. 56-57)

60. PPL Electric also 15-minute interval temperature readings from the meter, so it can track the meter's temperature and identify any current issues or problematic trends. (Tr. 56)

61. If the Company detects an issue with the meter's temperature, PPL Electric can then dispatch a technician to investigate. (Tr. 56)

62. The Complainant's current meter does not have the ability to transmit its temperature to PPL Electric. (Tr. 57)

63. Thus, the new AMI meter is actually better equipped to help prevent a fire. (Tr. 56-57)

64. PPL Electric has examined the issues with other meters and taken many steps to prevent fire incidents similar to the ones alleged by the Complainant. (Tr. 52-54)

65. PPL Electric witness Larson testified that the root cause of a many of these fires was loose connections within the meter base. (Tr. 54)

66. When there are loose connections within the meter base, there could be rapid heat built up. (Tr. 54)

67. PPL Electric has taken several steps to mitigate this risk. The Company consulted with several other utilities and enhanced its inspection criteria so that its service technicians and contractors are better able to identify any issues. (Tr. 54-56)

68. Further, the new AMI meters meet the standards and certifications issued by the American National Standards Institute ("ANSI") and Underwriters Laboratories ("UL"). (Tr. 53)

69. PPL Electric also set stringent qualifications during its testing and selection of the available RF Mesh meters. (Tr. 52-53)

70. Among those qualifications was a requirement that AMI meter's materials be able to withstand a thermal index of 160 degrees Celsius before breaking down. (Tr. 52)

71. Indeed, PPL Electric utilized a third party independent lab to evaluate all of the meters on the market and determine if they would breakdown at 160 degrees Celsius. (Tr. 52-53)

72. The AMI meter selected by PPL Electric was the only meter that met the Company's stringent testing and standards. (Tr. 53)

73. PPL Electric has deployed approximately 928,000 new AMI meters in its service territory, and Mr. Larson is aware of no fires being caused by the Focus AXR-SD meter. (Tr. 57-58)

74. The new AMI meter to be installed by the Company is not a fire or safety hazard. (Tr. 52-58)

75. 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. (Complainant's Exhibit 25; Tr. 14)

76. PPL Electric witness Larson 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. (Tr. 34-35, 50-51)

77. The Company uses firewalls to prevent anyone from obtaining unauthorized access to the AMI network. (Tr. 34, 50-51)

78. The customer's data also is encrypted to make the data only readable to Company personnel who can decode the encryption. (Tr. 34-35, 50-51)

79. At the meter, the Company utilizes several levels of randomized passwords that meet national standards of 20 digits fully randomized. (Tr. 50)

80. Rules and procedures also are in place to control Company personnel's access to the data. (Tr. 35, 50)

81. Specifically, the Company "use[s] authentication and digital signatures" as well as "access controls," which require the input of passwords that must be changed on a regular basis. (Tr. 35)

82. As a result, only the Company's designated personnel have access to the data. (Tr. 35)

83. Further, cybersecurity and data privacy were addressed at length in PPL Electric's Smart Meter Plan (see PPL Electric Exhibit No. 3), and the Company's cybersecurity policies and practices are consistent with the national standards for the industry. (Tr. 51)

84. The new AMI meter cannot tell if a customer is using a particular appliance. (Tr. 33-34)

85. As PPL Electric witness Hennegan explained, "[T]here's no tagging in the data that says this piece of information is coming from this specific appliance." (Tr. 34)

86. PPL Electric measures the total electric usage of the premises. (Tr. 34)

87. Moreover, 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. (Tr. 33; PPL Electric Exhibit No. 5)

88. 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. (Tr. 33; PPL Electric Exhibit No. 5, Section 1.2)

89. Therefore, the new AMI meter does not raise privacy and cybersecurity concerns. (Tr. 33-35, 50-51)

90. PPL Electric has never issued the Complainant a notice of termination. (PPL Electric Exhibit No. 2)

APPENDIX B

Appendix B – Proposed Conclusions of Law

1. Under Section 332(a) of the Pennsylvania Public Utility Code, the proponent of a rule or order has the burden of proof. 66 Pa. C.S. § 332(a). It is well established that “[a] litigant’s burden of proof before administrative tribunals as well as before most civil proceedings is satisfied by establishing a preponderance of evidence which is substantial and legally credible.” *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600, 602 (Pa. Cmwlth. 1990).

2. The preponderance of evidence standard requires proof by a greater weight of the evidence. *Commonwealth v. Williams*, 557 Pa. 207, 732 A.2d 1167 (1999). This standard is satisfied by presenting evidence that makes the existence of a contested fact is more likely than its nonexistence. *Brown v. Commonwealth*, 940 A.2d 610, 614 n.14 (Pa. Cmwlth. 2008) (citation omitted).

3. 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”; rather, the person must demonstrate by a preponderance of the evidence that such exposure actually causes adverse health effects. *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*”).

4. In AMI meter-related matters, the Commission has held that “[t]he Complainant will have the burden of proof during the proceeding to demonstrate, by a preponderance of the evidence, that [the utility] is responsible or accountable for the problem described in the Complaint.” *Kreider v. PECO Energy Co.*, Docket No. P-2015-2495064, p. 18 (Order entered Sept. 3, 2015).

5. Section 701 of the Public Utility Code provides that “any person . . . having an interest in the subject matter . . . may complain in writing, setting forth any act or thing done or omitted to be done by any public utility in violation, or claimed violation, of any law which the commission has jurisdiction to administer, or of any regulation or order of the commission.” 66 Pa. C.S. § 701.

6. Section 1501 of the Public Utility Code states, in pertinent part, that:

Every public utility shall furnish and maintain adequate, efficient, safe, and reasonable service and facilities, and shall make all such repairs, changes, alterations, substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public. Such service also shall be reasonably continuous and without unreasonable interruptions or delay. Such service and facilities shall be in conformity with the regulations and orders of the commission. Subject to the provisions of this part and the regulations or orders of the commission, every public utility may have reasonable rules and regulations governing the conditions under which it shall be required to render service. . . .

Id. § 1501.

7. The Commission has exclusive jurisdiction to adjudicate “issues involving the reasonableness, adequacy, and sufficiency” of a public utility’s facilities and services. *See Elkin v. Bell of Pa.*, 420 A.2d 371, 374 (Pa. 1980) (citations omitted).

8. When presented with a challenge to an AMI meter installation, the Commission has pronounced that “[t]he ALJ’s role . . . will be to determine based on the record in this particular case, whether there is sufficient evidence to support a finding that the Complainant was adversely affected by the smart meter or whether [the utility’s] use of a smart meter will constitute unsafe or unreasonable service in violation of Section 1501 under the circumstances in this case.” *Kreider v. PECO Energy Co.*, Docket No. P-2015-2495064, p. 23 (Order entered Jan. 28, 2016) (citing *Woodbourne-Heaton*, 1992 Pa. PUC Lexis 160, at *12-13).

9. Under Pennsylvania's "Walker Rule," it is well-established that "[h]earsay evidence, properly objected to, is not competent evidence to support a finding." *Walker v. Unemployment Comp. Bd. of Review*, 367 A.2d 366, 370 (Pa. Cmwlth. 1976) (citations omitted).

10. Even if hearsay evidence is "admitted without objection," the ALJ must give the evidence "its natural probative effect and may only support a finding . . . if it is corroborated by any competent evidence in the record;" as "a finding of fact based solely on hearsay will not stand." *Id.* at 370 (citations omitted).

11. The Complainant has failed to sustain her burden of proof that installing the new AMI meter would violate the Public Utility Code or any Commission regulation or order. *See* 66 Pa. C.S. § 332(a), 701.

12. PPL Electric is legally required to install the RF Mesh meter on the premises by Act 129 and Commission orders. *See* 66 Pa. C.S. § 2807(f); *Smart Meter Procurement and Installation*, Docket No. M-2009-2092655, pp. 9, 14 (Order entered June 24, 2009) ("*Smart Meter Implementation Order*").

13. Nothing in Act 129 permits a customer to "opt-out" of a smart meter installation. *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).

14. The Commission previously determined that the Company's existing PLC meters are not compliant with Act 129 and the Commission's *Smart Meter Implementation Order*. *See Petition of PPL Electric Utilities Corporation for Approval of Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2009-2123945, p. 24 (Order entered June 24, 2010) ("*2010 Smart Meter Order*").

15. Under the Company's Commission-approved Smart Meter Plan, PPL Electric must replace all of the PLC meters with the RF Mesh meters, which the Commission declared as meeting all of the requirements of Act 129 and the Commission's *Smart Meter Implementation Order*. See *Petition of PPL Electric Utilities Corp. for Approval of Its Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2014-2430781, p. 24 (Order Entered Sept. 3, 2015) ("2015 Smart Meter Order").

16. If the Company does not install the new RF Mesh meter on the property where the Complainant resides in accordance with the Commission-approved deployment schedule, PPL Electric may violate the Commission's *2010 Smart Meter Order*, *2015 Smart Meter Order*, and *Smart Meter Implementation Order*.

17. The Complainant has failed to demonstrate that the new AMI meter causes, contributes to, or exacerbates any adverse health effect.

18. The Complainant has failed to sustain her burden of proof that installing the new AMI meter would constitute unsafe or unreasonable service in violation of 66 Pa. C.S. § 1501.

19. PPL Electric is permitted under Rule 2F of its Commission-approved to access the Complainant's property for the purpose of installing the new AMI meter. (PPL Electric Exhibit No. 6) (emphasis added)

20. Public utilities' tariffs have the force and effect of law and are binding on the utilities and their customers. See *PPL Elec. Utils. Corp. v. Pa. PUC*, 912 A.2d 386, 402 (Pa. Cmwlth. 2006) (citing 66 Pa. C.S. § 1303 and *Pa. Elec. Co. v. Pa. PUC*, 663 A.2d 281, 284 (Pa. Cmwlth. 1995)).

21. The Public Utility Code, the Commission's regulations, and PPL Electric's tariff expressly permit the Company to terminate service if a customer fails to provide the Company

with access to the property in order to replace the meter. *See* 66 Pa. C.S. § 1406(a)(4); 52 Pa. Code § 56.81(3); (PPL Electric Exhibit No. 7).

APPENDIX C

Appendix C – Proposed Ordering Paragraphs

1. That the Formal Complaint filed by Evangeline Hoffman-Lorah against PPL Electric Utilities Corporation at Docket No. C-2018-2644957 is hereby dismissed in its entirety with prejudice.
2. That this matter is marked closed.