**PENNSYLVANIA**

**PUBLIC UTILITY COMMISSION**

**Harrisburg, PA 17105-3265**

|  |  |
| --- | --- |
|  | Public Meeting held May 9, 2019 |
| Commissioners Present:  Gladys M. Brown Dutrieuille, Chairman  David W. Sweet, Vice Chairman  Norman J. Kennard  Andrew G. Place  John F. Coleman, Jr. |  |
| Cynthia Randall and Paul Albrecht | C-2016-2537666 |
| v. |  |
| PECO Energy Company |  |

**OPINION AND ORDER**

Table of Contents

[I. Background 1](#_Toc6833459)

[II. History of the Proceeding 4](#_Toc6833460)

[III. Discussion 7](#_Toc6833461)

[A. Legal Standards 7](#_Toc6833462)

[B. Litigated Issues 13](#_Toc6833463)

[1. Whether the Complainant was Required under Applicable Law to Prove that RF Exposure from a PECO Smart Meter Will Cause the Adverse Health Effects Alleged in the Amended Complaint 13](#_Toc6833464)

[a. Positions of the Parties 13](#_Toc6833465)

[b. ALJ’s Initial Decision 23](#_Toc6833466)

[c. Complainant’s Exception No. 5 and PECO’s Reply 23](#_Toc6833467)

[d. Disposition 25](#_Toc6833468)

[2. Whether the Complainant Has Demonstrated by a Preponderance of the Evidence that RF Exposure from a PECO Smart Meter Will Adversely Affect Her Health 31](#_Toc6833469)

[a. Positions of the Parties 31](#_Toc6833470)

[b. ALJ’s Initial Decision 54](#_Toc6833471)

[c. Exceptions and Replies 58](#_Toc6833472)

[d. Disposition 58](#_Toc6833473)

[e. Complainant’s Exception No. 1 and Disposition 65](#_Toc6833474)

[f. Complainant’s Exception No. 2 and Disposition 66](#_Toc6833475)

[g. Complainant’s Exception No. 3 and Disposition 78](#_Toc6833476)

[h. Complainant’s Exception No. 4 and Disposition 81](#_Toc6833477)

[i. Complainant’s Exception No. 8 and Disposition 83](#_Toc6833478)

[3. Whether “Reasonable” Service under Section 1501 Requires PECO to Make an Exception to the Installation and Use of a Smart Meter at the Complainant’s Residence 85](#_Toc6833479)

[a. Positions of the Parties 85](#_Toc6833480)

[b. ALJ’s Initial Decision 87](#_Toc6833481)

[c. Complainant’s Exception No. 6 and PECO’s Reply 87](#_Toc6833482)

[d. Disposition 88](#_Toc6833483)

[4. Whether the Complainant’s Substantive Due Process Rights Will Be Violated by an Order Finding for PECO 89](#_Toc6833484)

[a. Positions of the Parties 89](#_Toc6833485)

[b. ALJ’s Initial Decision 91](#_Toc6833486)

[c. Complainant’s Exception No. 7 and PECO’s Reply 92](#_Toc6833487)

[d. Disposition 93](#_Toc6833488)

[IV. Conclusion 93](#_Toc6833489)

**BY THE COMMISSION:**

Before the Pennsylvania Public Utility Commission (Commission) for consideration and disposition are the Exceptions filed by Cynthia Randall, PhD (Ms. Randall or the Complainant)[[1]](#footnote-1) and Paul Albrecht on May 14, 2018, in response to the Initial Decision of Administrative Law Judge (ALJ) Darlene D. Heep, served on the Parties on March 20, 2018, in the above-captioned proceeding (Randall Initial Decision or Randall I.D.). PECO Energy Company (PECO or the Company) filed Replies to the Complainant’s Exceptions on June 4, 2018. The Randall Initial Decision denied the Formal Complaint (Complaint) filed by Ms. Randall and Mr. Albrecht on April 1, 2016. For the reasons discussed below, we shall deny the Complainant’s Exceptions, modify, in part, and adopt, in part, the Initial Decision of ALJ Heep, and dismiss the Complaint, consistent with this Opinion and Order.

# Background

This case involves an inquiry concerning the safety of the Complainant’s exposure to the level of radio frequency (RF) fields, or electromagnetic energy,[[2]](#footnote-2) from the advanced metering infrastructure (AMI) meter, or smart meter, that PECO proposes to install at the Complainant’s residence and use in the ordinary course to measure the Complainant’s electricity consumption.

PECO is an electric distribution company (EDC) subject to the jurisdiction of the Commission. PECO furnishes, owns and maintains the meters in its distribution system. *See* PECO’s Tariff Electric Pa. P.U.C. No. 5, Section 6.4, at 14; *see also* Section 14.1, page 22.

Act 129 of 2008 (Act 129 or Act), *inter alia*, amended Chapter 28 of the Public Utility Code (Code) and required EDCs with more than 100,000 customers to file smart meter technology procurement and installation plans for Commission approval and to furnish smart meter technology within its service territory in accordance with the provisions of the Act. Section 2807(f) of the Code provides as follows:

(f) *Smart Meter technology and time of use rates.*

(1) Within nine months after the effective date of this paragraph, electric distribution companies shall file a Smart Meter technology procurement and installation plan with the commission for approval. The plan shall describe the Smart Meter technologies the electric distribution company proposes to install in accordance with paragraph (2).

(2) Electric distribution companies shall furnish Smart Meter technology as follows:

(i) Upon request from a customer that agrees to pay the cost of the Smart Meter at the time of the request.

(ii) In new building construction.

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

66 Pa. C.S. § 2807(f). The General Assembly found that it was “in the public interest” to implement the measures set forth in Act 129 and that the universal installation of smart meters would enhance the “health, safety and prosperity” of Pennsylvania’s citizens through the “availability of adequate, reliable, affordable, efficient and environmentally sustainable electric service at the least cost.” *See* H.B. 2200, 192d Gen. Assemb., Reg. Sess. (Pa. 2008)).

By Order entered in 2009, the Commission directed all EDCs subject to Act 129’s smart meter requirements, including PECO, to universally deploy smart meter technology within their respective service territories in the Commonwealth in accordance with a depreciation schedule not to exceed fifteen years and in accordance with other guidelines established therein. *See Smart Meter Procurement and Installation*, Docket No. M-2009-2092655 (Implementation Order entered June 24, 2009) (*Smart Meter Procurement and Installation Order*). PECO sought and obtained the Commission’s approval to complete the installation of AMI meters for substantially all customers within its service territory by the end of 2014. *See* *Petition of PECO Energy Company for Approval of its Smart Meter Universal Deployment Plan*, Docket No. M-2009-2123944 (Order entered August 15, 2013)); *see also* *Petition of PECO Energy Company for Approval of Smart Meter Technology Procurement and Installation Plan*, Docket No. M-2009-2123944 (Order entered May 6, 2010).

PECO, in carrying out its obligations under Act 129 and the relevant Commission’s Orders implementing Act 129, sent a letter to the Complainant on May 14, 2013, announcing its plans to install a smart meter on her property. The Complainant objected to the installation of the AMI meter and contacted PECO through an attorney to demand that the company not change the meter. At the time Ms. Randall and Mr. Albrecht contacted PECO, the Complainant believed that she had an analog meter rather than the AMR meter PECO had installed at her home in 2002. *See* Randall I.D. at 5, FOF Nos. 5-8 (citations omitted).

On January 21, 2016, PECO sent a letter to the Complainant stating that PECO planned to install a smart meter at the Complainant’s home in April 2016. The Complainant’s attorney sent a letter dated March 2, 2016 stating that the Complainant did not wish to have a smart meter installed at her residence. On March 14, 2016, PECO replied to the Complainant’s March 2, 2016 letter, stating that PECO had placed the installation of the smart meter on hold, but notifying the Complainant that PECO planned to replace the Complainant’s meter. Complaint at ¶¶ 6,8.

# History of the Proceeding

On April 1, 2016, the Complainant filed the Complaint with the Commission against PECO in which she stated that she did not wish to have a smart meter installed on her premises because of the health risks presented by the installation of such meters. Complaint at ¶ 6. For relief, the Complainant requested that the Commission: (1) compel PECO to comply with 66 Pa.C.S. § 1501 and Section 57.194; (2) compel PECO to cease attempting to install a smart meter on her property; (3) compel PECO to provide an accommodation for the Complainant based on her medical history; (4) compel PECO to allow the Complainant to utilize an analog meter at her residence; and (5) order a permanent stay of any current or future termination on the part of PECO. Complaint at ¶¶ 30-34. In the alternative, and pursuant to 52 Pa. Code § 1.91, the Complainant respectfully requested that the Commission order the waiver of any rule, regulation or Commission Order that requires PECO to install a smart meter on the Complainant’s premises. Complaint at ¶ 35.

PECO filed an Answer and Preliminary Objection on April 21, 2016. In its Answer, PECO denied that the smart meter will have adverse health effects and further averred that the Company is installing these meters in compliance with its obligations under Act 129 and Commission orders. The company also asserts that termination of service is authorized where a customer will not provide access to a meter.

On June 14, 2016, the Preliminary Objection filed by PECO was sustained in part with respect to the request for relief seeking an “opt out” of smart meter installation. It was ordered that a hearing be scheduled to address whether installation of a smart meter at the Complainant’s residence, in light of her health concerns, constitutes unsafe and unreasonable service in violation of 66 Pa.C.S. § 1501.

Two days of hearing were held June 7-8, 2016 in *Povacz v. PECO Energy Company*, Docket No. C-2015-2475023.

On August 26, 2016, the Parties’ Joint Motion for An Omnibus Schedule Revision was granted,[[3]](#footnote-3) and a revised Pre-Hearing Order was issued which stated that unless there is reference to a specific complainant, expert testimony is considered common testimony between and among all Omnibus Complainants and admitted in accordance with 52 Pa. Code § 5.407.

Further Omnibus Hearings were held September 15 -16, 2016, September 27, 2016, December 5-9, 2016 and January 25, 2017. The final Omnibus transcript was filed with the Commission on February 14, 2017. The record closed on November 13, 2017, upon receipt of the Parties’ Reply Briefs. The record in this proceeding consists of 1,910 pages of transcript and 173 exhibits (the Complainants 132 exhibits, PECO 41).[[4]](#footnote-4)

During the hearing, the ALJ granted the unopposed oral request by the counsel for the Complainants that all medical information and testimony be marked and kept confidential. A Protective Order regarding medical information of the Complainants was issued on March 13, 2018.

On March 20, 2018, the Commission served ALJ Heep’s Initial Decision in *Cynthia* *Randall and Paul Albrecht v. PECO Energy Company*, Docket No. C-2016-2537666. The Commission issued both a confidential “proprietary” version and a non-confidential “non-proprietary” version of the Randall Initial Decision. For the purposes of this Opinion and Order, all references to the Randall Initial Decision below will be to the non-proprietary version.

As noted above, on May 14, 2018, Ms. Randall filed Exceptions to the Randall Initial Decision.[[5]](#footnote-5) Replies to Exceptions were timely filed by PECO on June 4, 2018.

# Discussion

## Legal Standards

As a matter of law, to establish a legally sufficient claim, a complainant must show that the named utility is responsible or accountable for the problem described in the complaint in order to prevail. *Patterson v. The Bell Telephone Company of Pennsylvania*, 72 Pa. P.U.C. 196 (1990) (“*Patterson*”). The offense must be a violation of the Code, a Commission Regulation or Order or a violation of a Commission-approved tariff. 66 Pa. C.S. § 701.

While Act 129 does not provide customers a general “opt-out” right from smart meter installation at a customer’s residence, a customer’s formal complaint that raises a claim under Section 1501 of the Code, 66 Pa. C.S. § 1501, related to the safety of a utility’s installation and use of a smart meter at the customer’s residence is legally sufficient to proceed to an evidentiary hearing before an ALJ. *See Maria Povacz v. PECO Energy Company*, Docket No. C-2012-2317176 (Order entered January 24, 2013) (*January 2013 Povacz Order*); *see also* *Susan Kreider v. PECO Energy Company*, P‑2015-2495064 (Order entered January 28, 2016) (*Kreider*).

As the party seeking affirmative relief from the Commission, the complainant in a formal complaint proceeding has the burden of proof. 66 Pa. C.S. § 332(a). The burden of proof is the “preponderance of the evidence” standard. *Suber v. Pennsylvania Com’n on Crime and Deliquency*, 885 A. 2d 678, 682 (Pa. Cmwlth. 2005) (*Suber*); *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600 (Pa. Cmwlth. 1990), *alloc. denied,* 529 Pa. 654, 602 A.2d 863 (1992) (*Lansberry*); *see also North American Coal Corp. v. Air Pollution Commission,* 279 A.2d 356 (Pa. Cmwlth. 1971). To establish a fact or claim by a preponderance of the evidence means to offer the greater weight of the evidence, or evidence that outweighs, or is more convincing than, by even the smallest amount, the probative value of the evidence presented by the other party. *See Se-Ling Hosiery, Inc. v. Margulies,* 364 Pa. 45, 48-49, 70 A.2d 854, 855 (1950).

The burden of proof is comprised of two distinct burdens: the burden of production and the burden of persuasion. *Hurley v. Hurley*, 2000 Pa. Super. 178, 754 A.2d 1283 (2000). The burden of production, also called the burden of going forward with the evidence, determines which party must come forward with evidence to support a particular claim or defense. *Scott and Linda Moore v. National Fuel Gas Distribution*, Docket No. C-2014-2458555 (Initial Decision issued May 11, 2015) (*Moore*). The burden of production goes to the legal sufficiency of a party’s claim or affirmative defense. *See Id*. It may shift between the parties during a hearing. A complainant may establish a *prima facie* case with circumstantial evidence. *See* *Milkie v. Pa. Pub. Util. Comm'n*, 768 A.2d 1217, 1220 (Pa. Cmwlth. 2001) (*Milkie*). If a complainant introduces sufficient evidence to establish legal sufficiency of the claim, also called a *prima facie* case, the burden of production shifts to the utility to rebut the complainant’s evidence. *See Moore*.

If the utility introduces evidence sufficient to balance the evidence introduced by the complainant, that is, evidence of co-equal value or weight, the complainant’s burden of proof has not been satisfied and the burden of going forward with the evidence shifts back to the complainant, who must provide some additional evidence favorable to the complainant’s claim. *See Milkie,* 768 A.2d at 1220*.; see also* [*Burleson v. Pa. PUC,* 443 A.2d 1373 (Pa. Cmwlth. 1982), *aff’d,* 501 Pa. 433, 461 A.2d 1234 (1983).](http://www.lexis.com/research/buttonTFLink?_m=0d7e78528297490763e78babd487bc42&_xfercite=%3ccite%20cc%3d%22USA%22%3e%3c%21%5bCDATA%5b2006%20Pa.%20PUC%20LEXIS%20102%5d%5d%3e%3c%2fcite%3e&_butType=3&_butStat=2&_butNum=16&_butInline=1&_butinfo=%3ccite%20cc%3d%22USA%22%3e%3c%21%5bCDATA%5b66%20Pa.%20Commw.%20282%5d%5d%3e%3c%2fcite%3e&_fmtstr=FULL&docnum=9&_startdoc=1&wchp=dGLzVzz-zSkAz&_md5=44d0f4cf51bc1159652e85695542a09d)

Having produced sufficient evidence to establish legal sufficiency of a claim, the party with the burden of proof must also carry the burden of persuasion to be entitled to a favorable ruling. *See Moore*. While the burden of production may shift back and forth during a proceeding, the burden of persuasion never shifts; it always remains on a complainant as the party seeking affirmative relief from the Commission. *See* *Milkie,* 768 A.2d at 1220; *see also, Riedel v. County of Allegheny*, 633 A.2d 1325, 1328, n.11 (Pa. Cmwlth. 1993); *see also*, *Burleson*, 443 A.2d at 1375[.](http://www.lexis.com/research/buttonTFLink?_m=cd18bf6b106de1ce89522a0ab7ac078a&_xfercite=%3ccite%20cc%3d%22USA%22%3e%3c%21%5bCDATA%5b1994%20Pa.%20PUC%20LEXIS%2095%5d%5d%3e%3c%2fcite%3e&_butType=3&_butStat=2&_butNum=9&_butInline=1&_butinfo=%3ccite%20cc%3d%22USA%22%3e%3c%21%5bCDATA%5b501%20Pa.%20443%5d%5d%3e%3c%2fcite%3e&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLbVlW-zSkAl&_md5=28aeeafc2a370113292dc79dfa134b36) It is entirely possible for a party to carry the burden of production but not be entitled to a favorable ruling because the party did not carry the burden of persuasion. *See Moore.* In determining whether a complainant has met the burden of persuasion, the ultimate fact-finder[[6]](#footnote-6) may engage in determinations of credibility, may accept or reject testimony of any witness in whole or in part, and may accept or reject inferences from the evidence. *See Moore*,citing *Suber*.

Adjudications by the Commission must be supported by substantial evidence in the record. 2 Pa. C.S. § 704; *Lansberry*, 578 A.2d at 602. Substantial evidence is such relevant evidence that a reasonable mind might accept as adequate to support a conclusion. *Consolidated Edison Company of New York v. National Labor Relations Board*, 305 U.S. 197, 229, 59 S.Ct. 206, 217. More is required than a mere trace of evidence or a suspicion of the existence of a fact sought to be established. *Norfolk & Western Ry. Co. v. Pa. PUC,* 489 Pa. 109, 413 A.2d 1037 (1980) (*Norfolk*); *Erie Resistor Corp. v. Unemployment Comp. Bd. of Review*, 166 A.2d 96 (Pa. Super. 1961); *Murphy v. Comm. Dept. of Public Welfare, White Haven Center*, 480 A.2d 382 (Pa. Cmwlth. 1984).

Pursuant to Section 1501 of the Code, a public utility has a duty to maintain “adequate, efficient, safe, and reasonable service and facilities” and to make repairs, changes, and improvements that are necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public. *See* 66 Pa. C.S. § 1501. Section 1501 of the Code, 66 Pa. C.S. § 1501, provides, in pertinent part, as follows:

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 and facilities shall be in conformity with the regulations and orders of the commission.

The term “service” is defined broadly under Section 102 of the Code, 66 Pa. C.S. § 102, in relevant part, as follows:

**“Service.”** Used in its broadest and most inclusive sense, includes all acts done, rendered, or performed, and all things furnished or supplied, and any and all facilities used, furnished, or supplied by public utilities. . .in the performance of their duties under this part to their patrons, employees, other public utilities, and the public, as well as the interchange of facilities between two or more of them . . .

Section 1505(a) of the Code, 66 Pa. C.S. § 1505(a), provides that:

Whenever the commission, after reasonable notice and hearing, upon its own motion or upon complaint, finds that the service or facilities of any public utility are unreasonable, unsafe, inadequate, insufficient, or unreasonably discriminatory, or otherwise in violation of this part, the commission shall determine and prescribe, by regulation or order, the reasonable, safe, adequate, sufficient, service or facilities to be observed, furnished, enforced, or employed, including all such repairs, changes, alterations, extensions, substitutions, or improvements in facilities as shall be

reasonably necessary and proper for the safety, accommodation, and convenience of the public.

Pursuant to Section 57.28(a)(1) of our Regulations,[[7]](#footnote-7) 52 Pa. Code § 57.28(a)(1), an EDC must use reasonable efforts to properly warn and protect the public from danger and to exercise reasonable care to reduce the hazards to which customers may be subjected to by reason of the EDC’s provision of electric utility service and its associated equipment and facilities. Section 57.28(a)(1), 52 Pa. Code § 57.28(a)(1), provides specifically:

An electric utility shall use reasonable effort to properly warn and protect the public from danger, and shall exercise reasonable care to reduce the hazards to which employees, customers, the public and others may be subjected to by reason of its provision of electric utility service and its associated equipment and facilities.

An EDC that violates the Code or a Commission Order or Regulation may be subjected to a civil penalty of up to $1,000 per violation for every day of that violation's continuing offense. *See* 66 Pa. C.S. § 3301(a)-(b). The Commission’s policy statement at 52 Pa. Code § 69.1201 establishes specific factors and standards the Commission will consider in evaluating litigated cases involving violations and in determining whether a fine is appropriate.

In the Initial Decision, ALJ Heep made thirty-five Findings of Fact and reached eight Conclusions of Law. *See* Randall I.D. at 4-9, 23-24. The Findings of Fact and Conclusions of Law are incorporated herein by reference and are adopted without comment unless they are either expressly or by necessary implication rejected or modified by this Opinion and Order.

As we proceed in our review of the various positions of the Parties in this proceeding, we are reminded that the Commission is not required to consider expressly or at length each contention or argument raised by the parties. [*Consolidated Rail Corp. v. Pa. PUC,* 625 A.2d 741 (Pa. Cmwlth. 1993);](file://C:\research\buttonTFLink?_m=69761b6202cb4178e2a6e6fe02f5751b&_xfercite=%3ccite%20cc=%22USA%22%3e%3c!%5bCDATA%5b2000%20Pa.%20PUC%20LEXIS%2067%20%5d%5d%3e%3c\cite%3e&_butType=3&_butStat=242&_butNum=5&_butInline=1&_butinfo=%3ccite%20cc=%22USA%22%3e%3c!%5bCDATA%5b625%20A.2d%20741%5d%5d%3e%3c\cite%3e&_fmtstr=FULL&docnum=5&_startdoc=1&_startchk=1&wchp=dGLSzS-lSlbz&_md5=ad2b02d95c2a9216e83b92a3570d4785) *also see, generally,* [*University of Pennsylvania v. Pa. PUC*, 485 A.2d 1217 (Pa. Cmwlth. 1984).](file://C:\research\buttonTFLink?_m=69761b6202cb4178e2a6e6fe02f5751b&_xfercite=%3ccite%20cc=%22USA%22%3e%3c!%5bCDATA%5b2000%20Pa.%20PUC%20LEXIS%2067%20%5d%5d%3e%3c\cite%3e&_butType=3&_butStat=242&_butNum=6&_butInline=1&_butinfo=%3ccite%20cc=%22USA%22%3e%3c!%5bCDATA%5b485%20A.2d%201217%5d%5d%3e%3c\cite%3e&_fmtstr=FULL&docnum=5&_startdoc=1&_startchk=1&wchp=dGLSzS-lSlbz&_md5=9b1cc8319afd12440738bb82d74455ef) Thus, any issue or Exception that we do not specifically address shall be deemed to have been duly considered and denied without further discussion.[[8]](#footnote-8)

## Litigated Issues

### Whether the Complainant was Required under Applicable Law to Prove that RF Exposure from a PECO Smart Meter Will Cause the Adverse Health Effects Alleged in the Amended Complaint

#### Positions of the Parties

The Parties each assert that the seminal Commission decision that applies in this proceeding is *Kreider*, *supra*. *See* Randall M.B. at 71; PECO M.B. at 13. However, the Parties disagree over what it is exactly the Complainant must prove in this proceeding based on the Commission’s decision in *Kreider* in order for the Complainant to prevail in her Complaint under Section 1501 of the Code. *See* Randall M.B. at 71-73, Randall R.B. at 5-17; PECO’s M.B. at 12-23, PECO R.B. at 4-19. We stated as follows in *Kreider*:

Holding a hearing in this case, to address Ms. Kreider’s factual averments regarding the specific health effects she experienced after the smart meter was installed outside of her bedroom, will enable us to closely evaluate these claims based on a fully developed evidentiary record.

\* \* \*

[T]he Complainant will have the burden of proof during the proceeding to demonstrate, by a preponderance of the evidence, that PECO is responsible or accountable for the problem described in the Complaint. 66 Pa. C.S. § 332(a); *Samuel J. Lansberry, Inc. v. Pa. PUC*, 578 A.2d 600 (Pa. Cmwlth. 1990), alloc. denied, 529 Pa. 654, 602 A.2d 863 (1992). In order to carry this burden of proof, the Complainant may be required to present evidence in the form of medical documentation and/or expert testimony. The ALJ’s role in the proceeding 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 PECO’s use of a smart meter to measure this Complainant’s usage will constitute unsafe or unreasonable service in violation of Section 1501 under the circumstances in this case. See, Woodbourne-Heaton Remand Order, slip op., at 12-13 (stating that the ALJ’s role was to determine whether there was sufficient record evidence to support a finding that the petitioners would be adversely affected by the reconductoring of the transmission line at issue).

*Kreider,* slip op., at 21-23 (citing *Letter of Notification of Philadelphia Electric Company 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 Counties*, 78 Pa.P.U.C. 486, 1993 WL 383052 (Pa.P.U.C.), 1992 Pa. PUC Lexis 160, Docket No. A‑110550F0055 (Remand Order entered March 26, 1993) (*Woodbourne-Heaton Remand Order*), slip op., at 12-13) (quoted in PECO’s Main Brief at 13).

The Complainant argues that the Commission’s decision in *Kreider* does not require proof of medical causation, *i.e*., that PECO’s AMI smart meter caused or will cause health conditions for the Complainant or will interfere with her health. According to the Complainant, in a Section 1501 complaint alleging human health hazards from the utility’s service and facilities, requiring proof of medical causation is so high a burden that it eviscerates PECO’s duty to provide safe and reasonable service. The Complainant submits that the Commission, in enforcing Section 1501, must be concerned not just with actual proven harm, but also with the potential for harm, because the role of the Commission includes consideration of policy. Randall M.B. at 71-73; Randall R.B. at 10-12, 17. According to the Complainant, if something is potentially harmful to the Complainant, it is both unsafe and unreasonable as to the Complainant. Randall M.B. at 71; Randall R.B. at 11-12. For the Complainant, this means that proving PECO’s use of smart meters adversely affects them and that it is unsafe and unreasonable under the circumstances for PECO to deploy a smart meter at her residence. Randall M.B. at 71.

The Complainant argues that the *potential for harm* is the standard the Commission must consider under Section 1501, because safety regulation cannot wait to act until the possibility of harm is conclusively proven. Randall M.B. at 55 (emphasis added). The Complainant argues that even PECO’s witness Dr. Davis admitted that experiments must be conducted on animals and not humans, for obvious reasons, and that because of that necessary limitation, the most an animal study will ever support is a conclusion about the potential for harm to humans. Randall M.B. at 54-55.

The Complainant argues that PECO tries to put the burden on the Complainant to prove RF has conclusively been proven to cause harm, but the Complainant states that PECO should shoulder the burden of proving safety. *Id*. at 57. The Complainant argues that PECO cannot meet that burden, which, according to the Complainant, is the reason why PECO relies so heavily on the Federal Communications Commission (FCC) limits, which the Complainant characterizes as being outdated. According to the Complainant, the most that PECO could hope to prove in these proceedings regarding the safety of smart meters is that the answer to this important question is currently undecided – neither proved nor disproved, with evidence on both sides of the issue. *Id*. at 57.

The Complainant submits that if the Commission requires the Complainant to prove that harm was or will be caused, then:

Taking PECO’s position to its logical but absurd conclusion, it does not matter how much of a risk of harm is presented, no customer could establish a violation of Section 1501 unless they could prove by a preponderance of the evidence (51%) that they have been or will be harmed. Under that reasoning, a 25% risk of electrocution of an electricity customer through

the action of a Pennsylvania utility would be deemed to be safe and not a violation of Section 1501.

Randall R.B. at 8. The Complainant argues that such result cannot be right, that the General Assembly could not have intended this, and the plain meaning of “safe” does not permit it.[[9]](#footnote-9) Randall R.B. at 8.

Relying upon its statutory interpretation under the Statutory Construction Act, the Complainant argues that there is nothing in the plain language of Section 1501 to support the argument that the Complainant must prove that harm was or will be caused. Randall R.B. at 6-8.[[10]](#footnote-10) In other words, the Complainant submits, a customer is not required to prove causation of harm as is required in a tort or toxic tort claim for damages. *See* Randall R.B. at 8-10.[[11]](#footnote-11) The Complainant argues that the standard applicable to an administrative agency charged with ensuring safety and reasonableness, “is reasonably lower than that appropriate in tort law, which traditionally makes more particularized inquiries into cause and effect and requires a plaintiff to prove that it is more likely than not that another individual has caused him or her harm.” Randall R.B. at 10 (quoting *Allen v. Pennsylvania Engin.* Corp, 102 F.3d 194, 198 (5th Cir. 1996)). The Complainant states that there is no requirement under Section 1501 that she prove that, more likely than not, she has been or will be harmed. Randall R.B. at 17.

The Complainant argues that the Commission did not explain in *Kreider* what it meant to be “adversely affected,” and it did not state that Ms. Kreider had to provide proof of tort law causation. In any event, the Complainant argues that the Commission in *Kreider* used the disjunctive *or* to mean that, in addition to proving that she was adversely affected by PECO’s use of a smart meter, Ms. Kreider could prevail by proving that service was unsafe or unreasonable. Randall R.B. at 13. The Complainant argues that *Kreider* did not address the specific issue presented here, *i.e*., whether Complainants must prove causation as if this were a tort case or whether she may instead prevail by proving lack of safety (risk of harm) or the unreasonable nature of PECO’s conduct. Randall R.B. at 13. The Complainant argues, however, that *Kreider* does indeed suggest that the relevant inquiry is the potential for harm by referring to *Renney Thomas v. PECO Energy Company*, Docket No. C-2012-2336225 (Order entered December 31, 2013) (*Renney Thomas*).Randall R.B. at 13-14 *(citing Kreider,* slip op., at 1). The Complainant submits that the Commission recognized in *Kreider* that the complainant in the *Renney Thomas* case did not need to prove his pregnant wife had already been harmed, but that the proper inquiry was the potential for harm. Randall R.B. at 14. Thus, the Complainant argues that the Commission must consider the potential for harm as well as the reasonableness of PECO’s conduct in insisting that Complainants suffer exposure to RF at their homes or properties in order to retain electric service. Randall R.B. at 14.

The Complainant also submits that the Commonwealth Court in *Romeo v. PaPUC*, 154 A.3d 422 (Pa. Cmwlth. 2017) (*Romeo*), “did not discuss the meaning in Section 1501 of the words ‘safe’ and ‘reasonable,’” and “nowhere did the court state that Romeo had the burden of proving causation of harm, in the tort law sense.” Randall R.B. at 14-15.

PECO, on the other hand, argues that the Complainant can prevail only if she proves, by a preponderance of the evidence that her exposure to the RF emissions from PECO smart meters has caused or will cause, contribute, or exacerbate her adverse health conditions. PECO M.B. at 1, 10; PECO R.B. at 11. PECO submits that the Complainant relied exclusively on the testimony of the Complainant’s expert witness in this proceeding, Dr. Andrew Marino, who testified that, while he believes that there is potential, or possible, risk from exposure to smart meters – that is, that they “could” cause harm – he also testified that there is “no evidence to warrant the statement” that a PECO smart meter “will,” “would,” or “did” harm the Complainants. PECO Main Brief at 10.

PECO argues that the Complainant seeks to reverse the normal burden of proof by placing it on PECO and that such reversal would violate PECO’s due process rights because, in response to the legislative mandate and Commission Orders, PECO has invested over $750 million to install an AMI system within its service territory – and under the reversed burden of proof proposed by Complainants, they would be allowed to disrupt that investment and deployment without proving that PECO’s system causes any harm. PECO submits that this is no way to run a utility system because it effectively gives veto power over any utility initiative to any customer who sincerely believes that the utility system has “potential for harm.” PECO M.B. at 14.

Moreover, PECO asserts that the Complainant seeks to have the Commission apply a standard of proof that would normally be used only in a legislative or quasi-legislative function proceeding, such as a rulemaking, even though this instant proceeding is an exercise of the Commission’s quasi-judicial function. PECO M.B. at 4‑5.

PECO further argues that the Commonwealth Court’s decision in *Romeo* used causation language when remanding the case, which provides support to the view that these cases are about causation. PECO M.B. at 15; PECO R.B. at 13. As quoted by PECO in its Briefs, the *Romeo* court stated (emphasis added by PECO):

Romeo claimed that the smart meters *cause* safety and fire hazards and have a negative health impact. Just because he cannot personally testify as to the health and safety effects does not mean that his complaint is legally insufficient. He could make out his claim through the testimony of others as well as evidence that goes to that issue.

PECO M.B. at 15; PECO R.B. at 13 (citing *Romeo*, 154 A.3d at 430). PECO submits that the Commonwealth Court did state that the remand in *Romeo* was for the purpose of allowing Mr. Romeo to prove causation. The court did not say that the case was remanded to allow a discussion of “potential” or “risk.” PECO R.B. at 13. PECO submits, therefore, that the court’s decision in *Romeo* is more consistent with PECO’s view of the burden of proof than with the Complainant’s view. PECO R.B. at 14.

Moreover, PECO argues that the Commission’s decision in *Kreider* provided clear guidance on the standard of proof to be used in a Section 1501 complaint proceeding involving conflicting scientific claims regarding adverse health effects by directing the parties to the early 1990s *Letter of Notification* proceeding involving PECO’s reconstruction of its Woodburne-Heaton 230 kV transmission line. PECO M.B. at 15-16; PECO R.B. at 11 (citing *Woodbourne-Heaton Remand Order*, slip op., at 7-8) (citing also *Letter of Notification of Philadelphia Electric Company 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 Counties*, 1993 WL 855896 (Pa. P.U.C. 1993), Docket No. 110550F0055 (Final Order entered November 12, 1993) (*Woodbourne-Heaton Final Order*). As PECO explains, the protestants to the Woodbourne-Heaton transmission line, similar to the Complainant in this proceeding, made the claim that the utility facility can be unreasonable even without conclusive evidence that exposure causes harm, which the Commission rejected. The Commission approved the transmission line, stating:

That by reason of the fact that the additional scientific research and studies presented of record at the hearing in the remanded proceedings do not support a finding or conclusion that there is a conclusive casual connection between exposure to EMFs and adverse human health effects because of the inconclusive nature of said research and studies, when viewed in totality, the Commission’s February 9, 1990 Order approving the Letter of Notification . . . is, hereby, affirmed; AND provided that the Woodbourne-Heaton Line must be operated and maintained in compliance with the National Electric Safety Code and with all applicable statutes, regulations and codes for the protection of the public and the natural resources of the Commonwealth of Pennsylvania.

PECO R.B. at 10 (citing *Woodbourne-Heaton Final Order*, slip op., at 11).

PECO submits that the Commission’s *Woodbourne-Heaton Final Order* provides a dispositive framework for the burden and standard of proof in the instant proceeding – that is, if the Complainants prove that there is a body of conflicting and inconclusive science, or that the science is “undecided,” then the Complainants have failed to meet their burden of proof, and cannot prevail. And PECO asserts that is exactly what the Complainants claim to have demonstrated. PECO M.B. at 18. PECO submits that the rule established in *Woodbourne-Heaton* has been utilized by the Commission to decide transmission line siting cases for a quarter of a century, and it is an appropriate approach to resolving claims that exposure to a utility facility is unsafe. PECO R.B. at 10.

Moving on from the implications of *Woodbourne-Heaton*, PECO argues that *Kreider* provides a separate, independent basis for concluding that that applicable standard in this case requires the Complainant to prove that PECO’s AMI meters will cause, contribute to, or exacerbate their adverse health conditions. PECO emphasizes that *Kreider* states that the Complainants “will have the burden of proof during the proceeding to demonstrate, by a preponderance of the evidence, that PECO is responsible or accountable *for the problem described in the Complaint*.” PECO M.B. at 18 (citing *Kreider*, slip op., at 23.) (emphasis added by PECO). Here, argues PECO, each of the Omnibus Complainants alleged in their respective Complaints that PECO’s AMI would cause, contribute to, or exacerbate their specific health conditions. PECO M.B. at 18.

PECO also argues that *Kreider* does not speak of proving the “potential” or “possibility” of harm. PECO M.B. at 19. PECO submits that *Kreider* does not say that the Complainant must prove that “PECO is responsible or accountable for the possibility that the problem described in the Complaint will actually exist,” or that they must prove that “PECO is responsible for or accountable for the potential that such a problem may exist,” or any other wording. According to PECO, that additional wording is being written in, *post hoc*, by the Complainant’s Briefs. PECO M.B. at 19.

PECO does not believe that the scope of the hearing in *Renney Thomas* offers any support for the Complainants’ view on burden of proof. The complainant in that proceeding claimed in his formal complaint that “electromagnetic fields pose a threat to fetal brain development” and other body functions. PECO filed preliminary objections claiming that a hearing was not allowed. The ALJ convened oral argument on PECO’s preliminary objections to allow the complainant to be heard on the alleged safety issue. Citing *Renney Thomas,* slip op., at 3. Because the complainant in that case provided no evidence that smart meters constitute a danger to health or physical safety, the ALJ granted PECO’s preliminary objections as a matter of law and dismissed the case without a full evidentiary hearing. PECO submits that there is nothing in *Renney Thomas* to suggest the use of a lower standard of proof based on “potential” risk. PECO R.B. at 12‑13.

PECO recognizes that the burden of proof that is set forth in *Woodbourne-Heaton*, *Kreider* and *Romeo* have a great deal in common with causation theories that are used in toxic tort litigation. But labelling the argument as being similar to toxic tort causation does not provide any insights into whether it is the proper burden of proof for use in this proceeding. PECO R.B. at 14. To that point, PECO notes that while the Complainants cite to numerous cases that describe what one must prove in a toxic tort case, not a single one of those of cases discusses what standard the Commission should use in this case. PECO R.B. at 14-15 (citations omitted).

Regarding the Complainant’s analogy to electrocution, PECO responds:

[The Complainant is] mixing apples and elephants. Electrocution is a known phenomenon that is known to cause adverse health effects. If a grounded person touches an energized facility without protective gear, the electric current will seek ground through the person’s body. Depending upon the voltage and amperage of the energized facility, the person might experience a shock, injury or even death. That general proposition certainly can be demonstrated by a preponderance of the evidence. And, if it was demonstrated by a preponder-ance of the evidence that a piece of utility equipment had a 25% chance of causing electrocution, it would of course be deemed unsafe.

PECO R.B. at 15. PECO states that for RF emissions, the Complainant admits that she has not demonstrated, by a preponderance of the evidence, that exposure causes injury or death. And, in that critical way, PECO submits that the Complainant’s electrocution analogy is not analogous to exposure to RF emissions. PECO R.B. at 15-16.

#### ALJ’s Initial Decision

The ALJ stated if the Complainant has established a prima facie case and the utility rebuts the Complainant’s evidence with evidence of co-equal weight, the burden is then upon the Complainant to rebut the utility’s evidence by a preponderance of the evidence. Randall I.D. at 10 (citation omitted). [[12]](#footnote-12) The ALJ noted that the Commission stated, in smart meter matters, “[t]he ALJs role in the proceedings 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 PECO’s use of a smart meter will constitute unsafe or unreasonable serve in violation of Section 1501 under the circumstances in this case.” Randall I.D. at 12 (citing *Kreider* at 23). To prevail, the ALJ stated that the Complainant must prove her contention that installing an AMI meter is unsafe and unreasonable by a preponderance of the evidence. Randall I.D. at 12. The ALJ implicitly concluded that the Complainant must demonstrate that a PECO smart meter will cause adverse health effects. Randall I.D. at 23.

#### Complainant’s Exception No. 5 and PECO’s Reply

In the Complainant’s fifth Exception, the Complainant states that the ALJ erred by implicitly concluding that the Complainant was required to prove that RF exposure from PECO’s meter would cause, contribute to, or exacerbate her conditions and symptoms. The Complainant notes that the ALJ did not explicitly address the issue of whether the Complainant must prove causation, but ultimately decided against the Complainant on this issue by noting that Dr. Marino did not testify that RF exposure from PECO’s meter would cause harm to Complainant and that Dr. Davis and Dr. Israel testified that it would not cause harm. Randall Exc. at 23-24. The Complainant states that there is no requirement to prove causation of harm to prove that electric service is not safe or reasonable to the Complainant. The Complainant avers that service that could cause harm to Complainant would violate Section 1501. Randall Exc. at 23-24. The Complainant argued that if an electric facility presented a 10% risk of death by electrocution, surely that risk would support a conclusion that the facility is unsafe or unreasonable and such could still be true of a 1% risk or even a .001% risk or lower. Randall Exc. at 24. This simple explanation, argues the Complainant, illustrates why an agency charged with safety oversight like the Commission should not look at the issue as if this were a tort lawsuit seeking damages. *Id*. In a tort case, a plaintiff would have to prove causation of harm to recover damages, but there is no similar requirement under Section 1501 as to the Complainant and it would defeat the express language and legislative intent to engraft such a requirement. *Id*. (citing Povacz R.B. at 5-17).

In its Replies to the Complainant’s fifth Exception, PECO submits that the Complainants reiterate their ongoing position that they do not have to prove that exposure to RF fields from AMI meters will cause them harm, only that it might cause them harm. PECO notes that this issue was fully briefed by both parties. PECO R. Exc. at 18 (citing Complainant’s M.B. at 71-73, PECO’s M.B. at 12-24, Complainant’s R.B. at 5-17, PECO R.B. at 4-19). PECO contends that the Complainant’s summary overview of her burden of proof argument does not provide any reason to reject the Initial Decision. PECO R. Exc. at 20.

#### Disposition

Although we believe the ALJ correctly decided the issue, we will provide further clarification on this legal question given the extensive briefing by the Parties on their positions and in an effort to minimize potential future re-litigation of this question in applicable proceedings.

In reaching our conclusion in *Kreider*[[13]](#footnote-13) that we could hear and adjudicate a complainant’s allegation(s) of unsafe service and facilities related to an EDC’s smart meter, we did not modify the standard or burden of proof that applies to a complainant in a formal complaint proceeding under Section 1501 before the Commission. As we stated in *Povacz v. PECO Energy Company*, Docket No. C-2015-2475023 (Order entered March 28, 2019) (*2019 Povacz Order*):

In *Kreider*, we correctly stated that the complainant in that case must prove, by a preponderance of the evidence, that the EDC is responsible or accountable for the problem described in the complaint. *Kreider,* slip op.,at 23. Because the complainant in that case had alleged that her health was “adversely affected” by the smart meter installed outside of her bedroom and that PECO’s use of a smart meter would violate Code § 1501, we explained that it would be the role of the ALJ to determine whether there is sufficient evidence to support a finding that the Complainant was adversely affected by the smart meter or whether PECO’s use of a smart meter to measure this Complainant’s usage would constitute unsafe or unreasonable service in violation of Section 1501 under the circumstances in that case. Those statements appearing in *Kreider*, in our opinion,are an accurate summary of applicable law, which is discussed extensively above in the “Legal Standards” section of this Order.

*2019 Povacz Order*, slip op., at 26-27.

Here, Ms. Randall must show that PECO is responsible or accountable for the problem described in the Complaint and that the offense is a violation of the Code, a Commission Regulation or Order or a violation of a Commission-approved tariff. 66 Pa. C.S. § 701; *Patterson*, *supra*. Upon a careful review of the statements contained in the Complaint, this means Ms. Randall must prove, by a preponderance of the evidence, that she is a medically vulnerable customer as to RF exposure given her medical history with cancer and other ailments and that her exposure to the RF fields from the AMI wireless smart meter that PECO plans to install and use at the Complainant’s residence to measure her usage has or will “exacerbate” or “adversely affect” her health and, therefore, constitute unsafe and unreasonable service in violation of Section 1501 of the Code. *See* Complaint at ¶¶ 9-14, 16, 19-20, 24, 26, 28-29.

The Complainant has argued that, in order to prevail under Section 1501, she need not demonstrate by a preponderance of the evidence that exposure to the RF emissions from PECO’s smart meter, once it is installed at her residence and used for the purpose of measuring her electricity consumption, will cause adverse effects, or harm, to her health. However, this is exactly the allegation made in her Complaint to support her claim that PECO’s proposed smart meter constitutes unsafe service under Section 1501 of the Code. As discussed above, the Complainant is required to demonstrate the allegations in her Complaint by a preponderance of the evidence.

Moreover, the Complainant has argued that if she proves the “potential for harm” from the RF exposure from a PECO smart meter, or as she has stated in another way, that the RF exposure “could” cause harm, it is sufficient to prevail under Section 1501, and to require proof of causation in this proceeding would be akin to a tort claim for damages, which is too high a standard. We respectfully reject the Complainant’s position. As we stated in the 2019 *Povacz Order*:

We agree with PECO’s position that the standard of review under Section 1501 that we articulated in the *Woodbourne-Heaton Final Order* applies here. The issue on review for our consideration in that case was related to EMFs exposure from an EDC transmission facility and adverse human health effects. We articulated that it must be demonstrated by a preponderance of the evidence that there is a “conclusive causal connection” between exposure to EMFs and adverse human health effects; when the record evidence demonstrates a body of inconclusive scientific research and studies as to the causal connection, the burden of proof is not satisfied. *Woodbourne-Heaton Final Order*, slip op., at 11. Applying that standard here, the Complainant must demonstrate by a preponderance of the evidence a “conclusive causal connection” between the low-level RF exposure from a PECO smart meter and the alleged adverse human health effects.

To otherwise address the Complainant’s tort law comparison, unlike tort law which includes as a required element proof of harm or injury already occurred, it is important to recognize that our enforcement authority under Sections 1501 and 1505 is not limited to review of claims only involving harm or injury already occurred. Our broad authority under Sections 1501 and 1505 also clearly includes our ability to hear and adjudicate claims that seek to prevent harm. *See e.g., Woodbourne-Heaton Final Order; see also e.g. Renney Thomas v. PECO Energy Company*, Docket No. C-2012-2336225 (Order entered December 31, 2013); *see also e.g. Robert M Mattu v. West Penn Power Company*, Docket No. C-2016-2547322 (Order entered October 25, 2018) (finding that the complainant satisfied his burden in showing that a utility’s proposed use of herbicide in implementing its vegetation management practices constituted unreasonable service).

*2019 Povacz Order*, slip op., at 28.

Indeed, this proceeding is a good case in point as multiple days of evidentiary hearings have been held before an ALJ notwithstanding the fact that an AMI meter has yet to be installed at the Complainant’s residence.[[14]](#footnote-14) FOF Nos. 5-7. As we continued in the *2019 Povacz Order*:

Nevertheless, the question of causation is still relevant. When the prevention of harm is involved, the question becomes whether the preponderance of the evidence demonstrates that a utility’s service or facilities will cause harm.

To illustrate the point, we wish to highlight the Complainant’s hypothetical example of electrocution and PECO’s response thereto. In its response to the Complainant’s example, PECO acknowledged in its Reply Brief that if a showing by a preponderance of the evidence was made that an electric facility presented even a 25% risk of causing harm from electrocution, the facility would be deemed unsafe. We agree with PECO’s response, and we add further that, in such a hypothetical example, our oversight authority does not require that we wait for the perfect or foreseeable exposure condition to materialize, such as, for example, a customer not wearing protective gear to walk up to and touch the uninsulated energized facility; instead, *the proven exposure to harm* would be sufficient to deem the facility unsafe in violation of Section 1501 and to direct the utility under Section 1505 to remove the unsafe facility and to furnish a safe facility.

After careful review of the Parties’ positions, our concern with the Complainant’s “potential for harm” or “capable of causing harm” standard under Section 1501, which we reject, is that it allows the mere demonstration by a preponderance of the evidence that a hazard13 exists in utility service to be sufficient to prevail under Section 1501. Continuing with the Complainant’s hypothetical example, under the Complainant’s standard, the mere showing that an energized facility is by its very nature hazardous because it is a source of potential electrocution, or, in the Complainant’s words, is a source of “potential for harm” or is “capable of causing harm,” would be sufficient for a finding of a violation of Section 1501. Under the Complainant’s standard, it would not matter how the utility designs, installs, operates, uses or maintains the energized line to reduce exposure to the hazard and to otherwise warn of and protect from danger. The Complainant’s standard rests upon a logical fallacy that equates any hazard with exposure to harm,14 and, on that basis, according to the Complainant, all hazards must be removed from utility services or facilities in order to be safe. However, even a layperson knows that public utility operations are not, as a general matter, hazard-free. As part of ensuring the safe operation of facilities and the safe provision of service, public utilities are, on a near continual basis, tasked with properly identifying, handling and reducing physical and health hazards to avoid danger to its employees, its customers and the general public. Indeed, the provisions of our Regulations at 52 Pa. Code § 57.28(a)(1), *supra*, recognize that it is the statutory duty of an EDC under Section 1501 to use reasonable efforts to properly warn and protect the public from danger and to exercise reasonable care to reduce the hazards to which customers may be subjected by reason of the EDC’s provision of electric utility service and its associated equipment and facilities. In our opinion, application of the Complainant’s standard, which we reject, is an overreach and would have dire consequences to the daily functioning and operation of public utilities and the provision of utility services within the Commonwealth as well as to our execution of our safety oversight authority over public utility operations. Consequently, we conclude that the Complainant’s interpretation of 66 Pa. C.S. § 1501 is not supported by the rules of statutory construction set forth under the Statutory Construction Act. *See* 1 Pa. C.S. § 1921 (“The object of all interpretation and construction of statutes is to ascertain and effectuate the intention of the General Assembly”); *see also* 1 Pa. C.S. § 1922(1) (it is presumed “That the General Assembly does not intend a result that is absurd, impossible of execution or unreasonable”).

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13 Merriam-Webster online dictionary defines “hazard” as a “source of danger.” https://www.merriam-webster.com/dictionary/hazard. The term “danger” is defined as “exposure or liability to injury, pain, harm or loss.” https://www.merriam-webster.com/dictionary/danger.

14 The following simple example helps explain the difference between the two: If there was a spill of water in a room, then that water would present a hazard to persons passing through it. If access to that room was open and no warning was given, then the persons passing through it would be exposed to harm resulting from a slip and fall. If access to

that area was prevented by a physical barrier and a warning was posted, then the hazard would remain, but the exposure to harm would be abated.

*2019 Povacz Order*, slip op., at 29-31. In her Exceptions, the Complainant focuses on the electrocution hypothetical by further arguing that if an electric facility presented even a 10%, 1% or .001% risk of death by electrocution, that the risk would support a conclusion that the facility is unsafe or unreasonable. Randall Exc. at 24. In referencing PECO’s response to the Complainant’s hypothetical presented in Reply Brief where the Complainant used a 25% risk as an example, we do not simply draw a bright line in terms of a specific risk percentage being dispositive on the issue of whether an existing or proposed utility facility/service is safe or unsafe. Rather, as we clearly articulated in the *2019 Povacz Order*, the proper focus of an inquiry regarding the safety of a utility facility or service is whether the preponderance of the evidence demonstrates that a utility facility or service caused or will cause harm to the public.

Based on the foregoing discussion, we shall deny the Complainant’s Exception No. 5.

### Whether the Complainant Has Demonstrated by a Preponderance of the Evidence that RF Exposure from a PECO Smart Meter Will Adversely Affect Her Health

#### Positions of the Parties

On the one hand, the Complainant argues that she has met the burden of proof in this proceeding in demonstrating the potential for harm to the Complainant from PECO’s AMI smart meter. Randall M.B. at 75-77, 79-80. The Complainant submits that PECO’s presentation of evidence did not effectively rebut the evidence presented by the Complainant in this proceeding. Randall M.B. at 41-70. On the other hand, PECO argues that the Complainant did not satisfy her burden of proof in this proceeding in demonstrating that that exposure to RF fields from an AMI meter has caused or will cause, contribute to, or exacerbate any adverse health effects. Indeed, PECO submits that the Complainant concedes she has not proven causation – meaning, she has not proved that PECO’s proposed smart meter did, will or would harm the Complainant’s health. PECO M.B. at 27; PECO R.B. at 1-3. Regardless, PECO submits that it effectively rebutted the Complainant’s evidence presented in this proceeding through the substantial, persuasive expert testimony that it presented. PECO M.B. at 44-49; PECO R.B. at 2.

We begin our more detailed review of the Parties’ positions with a summary of the Complainant’s presentation of the evidence and PECO’s challenges related thereto.

In relevant part, the Complainants’ presentation of the evidence included[[15]](#footnote-15) the testimony of Ms. Randall, the expert testimony of Ms. Randall’s treating physician, Dr. Ann Honebrink, M.D., and the expert testimony of Dr. Andrew Marino, PhD. Randall I.D. at 16-18. Dr. Honebrink is one of Ms. Randall’s treating physicians. Dr. Honebrink is part of the faculty in the obstetrics-gynecology department at the University of Pennsylvania. Dr. Honebrink has been treating Ms. Randall since at least 1989. Randall I.D. at 16-17; FOF 13-15, September 27, 2016 Hearing Tr. at 9-10.

As for Dr. Marino’s qualifications, Dr. Marino was a professor at the Louisiana State University Medical School for approximately thirty-three years. At the time of the hearing, he was retired from the medical school and worked developing software intended to diagnose neurological and neuropsychiatric diseases. During his career, he focused on the biological effects of electromagnetic energy and the electrical properties of tissue as they are influenced by that energy. He has a B.S. in physics from Saint Joseph’s University and a Ph.D. in biophysics from Syracuse University. Randall I.D. at 17 (citing *Testimony of Dr. Andrew Marino Hearing Transcript* at 565-566); Randall M.B. at 36-37.

The Complainant argues that Dr. Marino’s background of scientific education, experience and authorship “uniquely” qualifies him to testify credibly on the issues before the Commission. Randall M.B. at 36. The Complainant states: “Dr. Marino’s long career (more than 45 years) focused on the biological effects of [electromagnetic energy] including more than 100 published papers, testimony in 20 cases, and three books – all dealing with the biological effects of [electromagnetic energy].” Randall R.B. at 31; *see also* Murphy M.B. at 40-41. The Complainant claims that: “Dr. Marino is far more qualified than either of PECO’s experts.” Randall R.B. at 31.

In response, PECO states that it accepted the proffer of Dr. Marino as an expert without objection or *voir dire*, and it continues to accept that Dr. Marino has sufficient background and training to meet the definition of an expert, but PECO sees nothing in those qualifications that makes him “uniquely” qualified to testify in this proceeding. PECO M.B. at 38.

The Complainant submits that she does not self-report as having electromagnetic hypersensitivity syndrome or “EHS,” but she does express concern about this risk if chronically exposed to a PECO smart meter at her residence, based on her medical history. Randall M.B. at 32 (citing September 15, 2016 Transcript at 641). The Complainant submits that Ms. Randall testified that she has taken responsible steps to avoid exposure to RF emissions or electromagnetic energy. Randall M.B. at 32 (citing September 27, 2016 Tr. at 59). The Complainant explains that the role of a treating physician is not to make determinations about causation but rather to diagnose disease, give advice about avoiding worsening the disease and treat the disease. Randall M.B. at 33 (citing September 15, 2016 Transcript at 645). The Complainant further submits that there is no consensus clinical diagnosis for EHS, and that in the absence of consensus clinical diagnosis, physicians do the best they can to address EHS based on what is available in peer-reviewed literature. Randall M.B. at 33 (citing September 15, 2016 Transcript at 645, 647-48).

PECO argues that the testimony of Dr. Honebrink does not meet the burden of proof in this proceeding. When Dr. Honebrink was asked: “In your opinion, has it been scientifically demonstrated the RF [radio frequency] fields from the PECO AMI meter can cause cancer?” She responded: “I really don’t have an opinion on that because I have not studied the PECO fields.” She was further asked: “In your opinion, has it been scientifically demonstrated that RF fields from the PECO AMI meter can exacerbate cancer?” She answered: “Again, that is not something I have specifically studied.” PECO M.B. at 35 (citing September 27, 2016 Tr. at 29).

The Complainant submits that Dr. Marino offered two overall expert opinions in this proceeding. Randall M.B. at 24. His first opinion is “that there is a basis in established science to conclude that the Complainants could be exposed to harm from the radiation emitted by PECO AMI or AMR smart meters.” Randall M.B. at 24. The bases for Dr. Marino’s first opinion included experimental animal studies, epidemiological studies, his published study on EHS, studies about possible mechanism and studies about pulse structure (as he defined it). Randall M.B. at 26-27 (citing September 15, 2016 Transcript at 594); Randall R.B. at 29. He also relied upon the May 2016 Report of the National Toxicology Program (NTP). Randall M.B. at 60 (citing January 25, 2017 Hearing Transcript at 1854). The Complainant goes on to summarize specific details of these individual studies upon which Dr. Marino relied in forming his opinion. *See* Randall M.B. at 27-29 (citing September 15, 2016 Transcript at 723-32, 596-97, 601-23, 625, 628-29); Randall M.B. at 60-62 (citing January 25, 2017 Hearing Transcript at 1854-56, 1859-61). The Complainant described such details of the bases of his opinion, in relevant part, as follows:

* Dr. Marino presented a chart, Marino Direct 3, showing recent studies on animals exposed to electromagnetic energy at high frequencies, such as smart meters and cellphones, and at low frequencies such as powerlines and household appliances. All the studies show biological effects. Dr. Marino’s opinion is that it is unreasonable to dispute the fact that the studies shown in his chart, as well as other studies not listed, show that energy levels comparable to those produced by PECO’s smart meters produce biological changes in humans and animals.
* Dr. Marino presented another chart, Marino Direct 4, of peer reviewed epidemiological studies at both high and low frequencies with energy comparable to PECO’s smart meters and they show a range of associations. In Dr. Marino’s opinion, these epidemiological studies give reason to believe that there is a potential for harm associated with being exposed to RF emissions like that from the PECO smart meter. According to Dr. Marino, that opinion is accepted by those who are independent from industry and not accepted by those who are not independent, which Dr. Marino refers to as being “bonded to industry.”[[16]](#footnote-16)
* Dr. Marino performed a research study on EHS and published the results of that research in peer-reviewed literature in 2011, which was coauthored with colleagues at LSU. The purpose of the study was to test whether there is a *bona fide* neurological condition called EHS. The study was performed on one subject, and to a statistical certainty, *i.e*., 95% probability, the subject was able to detect the presence of electromagnetic energy; the physicians who worked on the study conducted appropriate tests to rule out other causes for the subject’s symptoms when exposed to electromagnetic energy. The study cost more than $500,000 to conduct.

* Dr. Marino has published and co-published various scientific studies and papers espousing different theories regarding the “non-thermal” mechanism by which RF energy can get into the human body and lead to adverse health effects. However, the Complainant submits in her Main Brief that it is not necessary for her to prove mechanism in this proceeding and admits that while the mechanism Dr. Marino’s papers describe is a sufficient mechanism there could be better explanations that come along as science advances. The Complainant further submits that this explanation of mechanism is unnecessary to the cause and effect relationship that is demonstrated by the empirical evidence presented by the Complainant in this proceeding.
* Dr. Marino relied upon the May 2016 Report of the NTP, a government agency that studies toxicological effects in the general public due to environmental factors. According to Dr. Marino, the draft NTP report concluded that RF energy that was studied caused cancer in rats, even at RF levels which were below the FCC limits. Dr. Marino testified that the report is still in draft because it has not yet been published in an archival scientific journal, but that the report has been intensively peer-reviewed more than any other report in the history of experimental biology that Dr. Marino knows about. Dr. Marino testified that the report is crucially important because it is a federal government agency that provides the evidence that the recognized basis of the present federal safety regulatory scheme at the FCC is not protective of health. Dr. Marino also testified that the report has direct bearing on the International Agency for Research on Cancer’s (“IARC’s”) classification of low levels of RF energy as a possible carcinogen.

In response to Dr. Marino’s first expert opinion, PECO raises a few challenges. First, PECO submits that Dr. Marino actually testified that there is a basis in established science that the Complainants could be “exposed to danger” not “exposed to harm.” PECO M.B. at 25 (citing September 15, 2016 Transcript at 578). According to PECO, this is not a trivial difference. Elsewhere in Dr. Marino’s testimony, he repeatedly used “risk” and “danger” as synonyms. Indeed, he testified that his definition of “health risks” is “actual or potential danger to human health from manmade electromagnetic energy.” Citing September 15, 2016 Transcript at 671. Therefore, whenever Dr. Marino discussed health “risks” or “dangers,” his testimony included the “potential” that the smart meters would cause harm. According to PECO, this is not a hypothetical difference, and it goes directly to whether the Complainant met her burden of proof. On direct testimony, Dr. Marino was directly asked to distinguish whether his opinion is that exposure to RF fields from PECO’s smart meter “could” – that is, has the potential to – cause harm to the Complainant or that exposure “would” – that is, actually – cause harm to the Complainant. PECO submits that Dr. Marino was absolutely clear that he was speaking only about the potential “could,” not the actual “would” and quotes his testimony from the transcript as follows:

Q: Now, do you have an opinion about whether electromagnetic energy from smart meters could cause the symptoms that were reported by Maria [Povacz] and Laura [Murphy]?

A: Yes.

Q: What is that opinion?

A: It could happen. It could be responsible. It could be a causal relationship. The evidence I think is clear about that. It could.

Q: Do you have an opinion about whether it did cause those symptoms?

A: I have an opinion that I can’t say whether it did or not. That’s my opinion about “did.”

Q: Okay. So why – why – what is the basis for that?

A: Well because in order to answer that, we would have to do a $500,000 study. That’s the only way you can normalize a cause and effect relationship in a given human being. You got to bring them in and do an experiment.

Q: You’re talking about with respect to electromagnetic energy?

A: Yes.

Q: Now, do you have an opinion about whether electromagnetic energy from smart meters could cause harm to the health of Cynthia Randall?

A: Yes.

Q: What is that opinion?

A: It could.

Q: Are you saying it will cause harm to her health?

A: No.

Q: And why are you not saying that it will cause harm to her health?

A: Because I have no basis to say that.

Q: Why not?

A: Why not? Why don’t I have a basis? I just don’t have it. There’s no evidence that could warrant that statement.

PECO M.B. at 25-26 (citing to September 15, 2016 Transcript at 643-44).

According to PECO, when taken at face value and accepted as true, Dr. Marino’s first opinion does not establish that exposure to PECO’s smart meter will cause, contribute to, or exacerbate any of the Complainant’s health conditions. According to PECO, his testimony does not meet the standard and burden of proof in this proceeding. PECO M.B. at 27.

Next, PECO contends there is little value in addressing each of the individual studies upon which Dr. Marino relied in forming his first opinion given PECO’s argument that Dr. Marino’s first opinion does not meet the standard or burden of proof in this proceeding. PECO M.B. at 31. However, PECO goes on to highlight a few issues because, in PECO’s opinion, they call into question whether even Dr. Marino’s expressed opinion should be accepted as stated, and certainly call into question whether his opinion should be the basis of a Commission action. PECO M.B. at 31-33. PECO identified the following issues with the bases for Dr. Marino’s first opinion:

* The first issue is Dr. Marino’s EHS study. PECO asserts that Dr. Marino candidly testified that, prior to his EHS study, there were no published studies that any person is able to detect the presence or absence of electromagnetic energy, and that he believes all of the studies other than his were poorly designed. PECO M.B. at 31 (citing September 15, 2016 Transcript at 614). He further testified that taking into consideration his own study, his opinion is that PECO’s smart meter has the potential to “trigger EHS, not cause it, trigger it,” but that “I believe my speculation is that’s the case, but I don’t have direct evidence to say that.” Citing September 15, 2016 Transcript at 779. PECO submits his testimony does not provide evidentiary basis to remove AMI meters from the Complainant’s residence. PECO M.B. at 31.
* The second issue is Dr. Marino’s view of “negative” studies.[[17]](#footnote-17) In forming his opinion, Dr. Marino testified that he believes that a negative study has “no probative value” and consequently gave no weight to any published research in which the investigator sought, but was not successful, at showing that exposure to RF fields caused a change in a measured endpoint. PECO M.B. at 32. PECO submits that its expert, Dr. Israel, testified that it is not scientifically valid to ignore negative studies, and it is very important to consider negative studies in determining whether a reported effect is reproducible. Dr. Israel stated that the practice of ignoring negative studies is not a generally accepted scientific practice, and that scientists routinely consider negative studies in making their evaluations. PECO M.B. at 32 (citing December 8, 2016 Transcript at 1552-53). PECO argues that Dr. Marino’s approach will result in a “very stilted” view of the body of research that skews towards only seeing positive studies and thus will lead the reviewer to artificially conclude that effects may exist, even if many negative studies have been done that failed to reproduce or replicate such an outcome.
* The third and final issue is that Dr. Marino’s belief about individuals being “bonded to industry” is jaded; that Dr. Marino’s testimony reveals that whenever a person or organization disagrees with Dr. Marino as to whether non-thermal effects exist, he does not grapple with the substance of their opinion; he simply concludes that they are “bonded to industry” and dismisses their opinion outright. PECO M.B. at 32-33 (citing September 16, 2016 Transcript at 858-59). PECO asserts that, notably, Dr. Marino placed the European Commission’s Scientific Committee on Emerging and Newly Identified Health Risks and an arm of the World Health Organization into the “bonded to industry” category without further evidence that they are being paid by industry simply because they disagree with him. PECO M.B. at 33 (citing September 15, 2016 Transcript at 837-841, 849). PECO argues that testimony based on such an approach cannot and should not be the basis of a Commission determination. PECO M.B. at 33.

In connection with Dr. Marino’s first opinion, the Complainant explained that Dr. Marino presented his views on the issues of the background levels of electromagnetic energy and pulsing. PECO presented challenges to Dr. Marino’s views on each issue, as discussed further below.

As for the issue of background levels of electromagnetic energy, Dr. Marino testified that in order for PECO’s smart meter to present risk, it would have to produce an RF field that is greater than the background or ambient field levels. Dr. Marino recognized that there is some electromagnetic energy in the background virtually everywhere. Dr. Marino assumed that the Complainant lives in a house that is electromagnetically quiet, meaning no Wi-Fi, cell phones, or smart meters and only lights and electric appliances, which, based on Dr. Marino’s typical experience, would mean the background level is between 0.01 and 0.001 microwatts per square centimeter. Randall M.B. at 24-25 (citing September 15, 2016 Transcript at 637, 582-84).

PECO submits that Dr. Marino’s testimony on background levels of RF fields should be doubted because Dr. Marino did not do any measurement or calculations of the background or ambient fields at the Complainant’s residence or place of work. He simply accepted the representations of the Complainant’s counsel that she had made efforts to reduce fields at her home, and he thus assumed that the fields would be similar to “quiet homes” at which he has made measurements in the past. PECO M.B. at 28 (citing September 15, 2016 Transcript at 582-84, 687, 692-93). Therefore, Dr. Marino has no data or baseline for the ambient level at the Complainant’s household upon which to base his comparison – only what counsel told him to assume.

As for the issue of pulsing, Dr. Marino testified that in his opinion the term means any source of electromagnetic energy that is turned on and then sometime later is turned off. Randall M.B. at 26 (citing September 15, 2016 Transcript at 590). In Dr. Marino’s opinion, there is no more efficient way to get the body to react to RF energy than to put in a “pulse,” as Dr. Marino has used the term. Randall M.B. at 26 (citing September 15, 2016 Transcript at 630). Dr. Marino testified that PECO smart meters are pulsed based on his definition of the term. Randall M.B. at 26 (citing September 15, 2016 Transcript at 592).

In response, PECO’s witness Dr. Christopher Davis testified in rebuttal that Dr. Marino’s use of the term pulse is the same as a layperson’s use of the term, but it is not the description used by communications physicists and engineers. Dr. Davis stated that when the term is used in the scientific sense, PECO’s smart meters do not pulse. Dr. Davis stated:

[I]n communications physics and engineering, “pulsed” means using 1. amplitude modulation and 2. doing so in a way that produces a signal that has abrupt changes in the amplitude of the sine wave. PECO’s AMI meter radios are not amplitude modulated so they do not produce “pulsed” fields. PECO’s AMI meter radios are frequency modulated, specifically “frequency shift keyed,” and send out a collection of regular non-pulsed sine waves around the frequencies they use . . . In sum, the fields from PECO’s AMI meters are not amplitude modulated and thus are not “pulsed” and therefore do not create “pulsed” fields. If [one] is using the term “pulsed” to suggest that during the time PECO AMIs transmit, they are sending pulses of radio frequency energy then he is incorrect.

PECO M.B. at 30 (quoting Murphy[[18]](#footnote-18) Rebuttal Testimony of Christopher Davis at 21-22).

The Complainant explains that Dr. Marino’s second expert opinion is that “because the PECO smart meters have not been proved safe it is unreasonable to force the Complainants to accept the exposure to the radiation emitted by the smart meters on their residences.” Randall M.B. at 24 (citing September 15, 2016 Transcript at 579). The Complainant submits that the basis for Dr. Marino’s second opinion is that it would be unreasonable to expose the Complainant to RF emissions because it would be tantamount to involuntary testing. Randall M.B. at 35 (citing September 15, 2016 Transcript at 663-665).

PECO asserts that Dr. Marino’s second opinion is even more problematic than his first opinion because, according to PECO, such opinion is simply an argument that the Commission should act upon the lower evidentiary standard proposed by the Complainant. PECO M.B. at 27. PECO submits that, in his direct testimony, Dr. Marino candidly admitted that this issue is not a “purely scientific” opinion, stating that, upon viewing the research data, “you can see that different minds may make different associations. Certain minds may require – certain minds may accept a level very high. Others not so high. Others may be too low. All depending on their attitude . . . That’s why it’s not a purely scientific question and never can be. Anybody who styles it that way isn’t thinking right.” PECO M.B. at 27 (citing September 15, 2016 Transcript at 636). PECO argues that since this is not a “purely scientific” issue, there is no reason to give any particular weight or deference to Dr. Marino’s opinion on it. Indeed, PECO submits that in the context of this litigation, there is significant reason to devalue Dr. Marino’s second opinion because his position reverses the burden of proof completely – according to Dr. Marino, PECO must prove that smart meters are safe, and if it has not done so, then it is “unreasonable” to deploy them to the Complainant’s home. According to PECO, this is the same as the claim that PECO has the burden of proof in this proceeding, which is not the standard used by the Commission in complaint proceedings. PECO M.B. at 27-28.

This concludes our summary of the Complainant’s presentation of the evidence and PECO’s challenges related thereto. Next, we turn to PECO’s presentation of the evidence and the Complainant’s challenges thereto.

PECO’s rebuttal case, or presentation of the evidence, included the expert testimonies of two scientists, Christopher Davis, PhD, and Mark Israel, M.D, and a PECO engineer, Mr. Glenn Pritchard, with expertise in the design and operation of PECO’s AMI system. PECO M.B. at 44.

As for Dr. Davis’ qualifications, Dr. Davis is a professor of electrical and computer engineering at the University of Maryland in College Park who studies, researches, teaches, and serves on national and international panels related to physics, biophysics, electrical engineering, electromagnetics, radiofrequency exposure and dosimetry. Randall I.D. at 20 (citing Murphy Rebuttal Testimony of Christopher Davis at 1-7). Dr. Davis has a PhD in physics from the University of Manchester (England). He has been elected as a fellow of the Institute of Electrical & Electronics Engineers (IEEE), and as a fellow of the Institute of Physics. In his work with IEEE, he served as a member of the Committee on Man and Radiation (COMAR) and was chair of the COMAR subcommittee on RF fields. He has served as a consultant on RF fields to the U.S. Institute of Health, the U.S. Food and Drug Administration, and United Kingdom Health Protection Agency. PECO M.B. at 44-45 (citing Murphy Rebuttal Testimony of Christopher Davis at 1-7).

The Complainant argues that Dr. Davis’ knowledge and experience is limited regarding the specific issues that are the focus of these proceedings and pale in comparison to Dr. Marino’s. The Complainant submits that Dr. Davis is an electrical engineer, not a biologist, and that his core expertise is electrical engineering and physics. The Complainant asserts that while he worked on a number of studies on electromagnetic energy, his primary role in all those studies was to design the exposure system and set up the experiment. The Complainant submits that Dr. Davis even admits that he might have said at a taped presentation that this is a subject on which he has been “peripherally involved.” Randall M.B. at 64-65 (citing December 7, 2016 Transcript at 1138-39, 1143; December 6, 2016 Transcript at 1089).

Dr. Davis testified that the FCC has established a “Maximum Permissible Exposure” or “MPE” for RF fields from AMI meters. The limit is 0.6 mW/cm2 or 0.6 milliwatts per square centimeter. Dr. Davis testified that the FCC standard was set on the following basis: there is one generally accepted mechanism by which RF fields can cause harm to humans – by being high enough to heat tissues. The FCC determined that the lowest level of RF exposure at which animals have been observed to detect that they are feeling a little bit warm in a RF field. The FCC then set the RF emission standard for humans at a level 50 times below that thermal threshold. Dr. Davis testified that in establishing and maintaining these standards, the FCC consults closely with the Food and Drug Administration (FDA), the Occupational Safety and Health Administration (OSHA), and the National Institute of Occupational Safety and Health (NIOSH). PECO M.B. at 45 (citing Murphy Rebuttal Testimony of Christopher Davis at 13). Dr. Davis explained that in setting its standards, the FCC considered claims of both thermal and non-thermal effects; however, it set the standards to avoid thermal effects because the scientific studies did not show any non-thermal effects. Dr. Davis testified that the FCC continues to consider whether there are adverse biological effects from non-thermal exposure levels, but it considers the scientific evidence for such effects to be “ambiguous and unproven.” PECO M.B. at 46 (citing Murphy Rebuttal Testimony of Christopher Davis at 14-15). Dr. Davis explained that the FCC keeps current on claims that RF fields can cause non-thermal effects; it does not believe that they have been demonstrated sufficiently to warrant change to the FCC standards. *Id*. Dr. Davis explained that the FCC’s ongoing review is done in coordination with other government agencies that oversee health and safety, as named above. PECO R.B. at 22-24. Dr. Davis testified that he himself has worked with FCC scientists in their labs on research projects involving cell phone testing in recent years. PECO R.B. at 24.

The Complainant challenges Dr. Davis’ testimony regarding the FCC limits. Specifically, the Complainant asserts that while the FCC sets emissions limits for devices like smart meters that emit RF energy, the FCC limits do not reflect a level that is safe for humans and, therefore, PECO errs in placing reliance on them, especially for the medically vulnerable Complainant. Randall M.B. at 62-63. The Complainant claims that the FCC limit is outdated and infers that the FCC has not kept current with studies of biological effects from exposure to RF at powers and frequencies comparable to smart meters. The Complainant submits that the FCC set the limits in 1986 based on a report of the National Council of Radiation Protection (NCRP) that demonstrated that effects can occur to humans through the heating of tissues. However, the Complainant claims the FCC has only consulted with other government agencies in *establishing* the limits in 1986, with no reference to *maintaining* the limits. The Complainant argues that Dr. Davis’ testimony on the FCC’s ongoing review of the limits in not credible and that it is impossible for the Commission to believe Dr. Davis regarding the FCC’s ongoing review. Additionally, the Complainant submits that the FCC’s use of averages is not a rule of science and Dr. Marino testified that the potential for harm results from the instantaneous or peak value and pulse pattern. Randall M.B. at 62-63, 33-34 (citing September 15, 2016 Transcript at 653-57), 43-44 (citing Direct Testimony of Dr. Andrew Marino, September 15, 2016 Transcript at 598-599); Randall R.B. at 35-36.

Dr. Davis testified that the average exposure from an AMI meter[[19]](#footnote-19) is many millions of times less than the FCC standards. For average exposure for a FlexNet meter, Dr. Davis’ Exhibit CD-2 shows average exposure at 7.8 x 10-8 mW/cm2 over a 24-hour period compared to the FCC maximum permissible limit of 0.6 mW/cm2 over 30 minutes. Dr. Davis also testified that the peak exposure levels of RF fields from a FlexNet meter are 40 times smaller than the FCC average-exposure standards. PECO M.B. at 46 (citing Murphy Rebuttal Testimony of Christopher Davis at 16-17; PECO Exh. CD-2, CD-3). For peak exposure, Dr. Davis’ Exhibit CD-3 shows a single emission of 0.016 mW/cm2 at two watts of power at a distance of one meter.

In response, the Complainant submits that its theory of the case is based on instantaneous or peak RF exposure levels from smart maters, not average values; therefore, the Complainant argues Dr. Davis’ calculated average exposure is irrelevant to this proceeding. Moreover, the Complainant explains that the FCC exposure limit is calculated as an average over 30 minutes while Dr. Davis calculated the average over a whole day; therefore, the Complainant asserts that Dr. Davis’ average numbers are misleading. Randall M.B. at 39. The Complainant argues that Dr. Davis admitted that the human body can be affected by RF only when exposed, and that to use averages is to consider more than 99% of the time when the human body is not exposed. For example, Dr. Davis admitted that 1,000 watts of radiation in the eye could do very serious harm but if the 1,000 watts was averaged over 30 minutes, it would be less than the power from a PECO smart meter. Randall M.B. at 44 (citing December 7, 2016 Transcript at 1230, 1347-48). Moreover, the Complainant submits that Dr. Marino and Dr. Davis agree on the power density calculations for peak exposure levels. The Complainant states that these peak exposure levels show that the RF fields from a smart meter is relatively close to the FCC limit – the FCC limit is 60 and the exposure at a distance of one meter is 16. Randall M.B. at 40 (citations omitted).

Dr. Davis also testified that PECO’s existing meter system uses AMR meters and also communicates using RF transmissions. Dr. Davis compared the average RF exposure from existing AMR meters to the average RF exposure from the new AMI meters and concluded that the AMI meter will provide 83% less RF exposure than the electric AMR meter that was installed at the Complainant’s residence and later replaced by Complainant with an analog meter. PECO M.B. at 46-47 (citing Murphy Rebuttal Testimony of Christopher Davis at 18, PECO Exh. CD-8).

The Complainant challenges Dr. Davis’ testimony regarding RF emissions from PECO’s existing AMR smart meter, explaining that Dr. Davis’ assertion is based on average exposure while Dr. Marino’s theory is based on peak exposure and pulse patterns (as Dr. Marino defines pulse). The Complainant submits that Dr. Davis even admitted that comparison of peak values shows that the RF exposure from AMI meters is twice as high as exposure from AMR meters. Randall M.B. at 43 (citing December 7, 2016 Transcript at 1387-88).

Dr. Davis also testified that people’s exposure to RF fields from everyday sources, including nearby ultra-high frequency (UHF) radio and television broadcasting stations, are hundreds of times larger than the average exposure from a PECO smart meter. PECO M.B. at 28-29, 47 (citing Murphy Rebuttal Testimony of Christopher Davis at 17-18; PECO Exh. CD-5 and CD-6). For example, exposure when using a cell phone is millions of times higher than from an AMI meter and typical exposure from standing 30 feet away from someone else using a cell phone results in exposure that is 300 times greater than being simultaneously exposed to peak emissions from an electric AMI meter. *Id*.

The Complainant challenges Dr. Davis’ testimony of RF exposure in everyday life, arguing that all are meaningless figures and calculations because Dr. Davis admits they are all comparisons of averages. The Complainant argues that, when examining RF exposure from a PECO AMI meter at peak levels, such does not seem small at all in comparison to other sources of exposure. Randall M.B. at 41 (December 7, 2016 Transcript at 1225-1243). Dr. Marino’s testimony regarding significant increases in electromagnetic energy exposure to the Complainant if PECO were permitted to deploy a smart meter at her “electromagnetically quiet” home negates this testimony as well as the testimony of PECO’s engineer, Mr. Pritchard, who testified in the Povacz and Murphy proceedings, that the addition of a smart meter at the Povacz residence and the Murphy residence would not materially add to the RF in their residences and that it would be useless for the Complainants to resist a smart meter on their homes because all of the homes in their neighborhoods have been fitted with smart meters. Randall M.B. at 42-43 (citing December 7, 2016 Transcript at 1245-1252; citing also Pritchard Murphy Rebuttal Testimony at 12, Pritchard Povacz Rebuttal Testimony at 17).

PECO submits that Dr. Davis concluded in his testimony that, to a reasonable degree of scientific certainty, there is no reliable scientific basis to conclude that exposure to RF fields from PECO’s AMI meters is capable of causing any adverse biological effects in people, including the Complainant. PECO M.B. at 47 (citing Murphy Rebuttal Testimony of Christopher Davis at 24-25).

The Complainant contends that Dr. Davis’ opinion cannot be relied upon by the Commission because he ignored the May 2016 NTP report and the IARC classification in formulating such opinion. Randall M.B. at 66 (citing January 25, 2017 Transcript at 1882-83; December 7, 2016 Transcript at 1334). The Complainant submits that there is “stark disagreement” between the Parties’ experts as what weight to give this report because at the time of the Omnibus Hearings it was still in draft form, but that Dr. Marino said the draft report is crucially important because it is a federal government agency that provides the evidence that the recognized basis of the present regulatory scheme of the FCC is not protective of health and has direct bearing on the IARC classification on low levels of RF exposure as a possible carcinogen. Randall M.B. at 67 (citing December 9, 2016 Transcript at 1856-57, 1859-60). Additionally, the Complainant argues that Dr. Davis’ opinion cannot be relied upon because he took the unreasonable position of saying he was “absolutely certain” that RF exposure cannot cause harm and as a result, “kids can hold cell phones against their heads all day long and there is absolutely nothing to worry about.” Randall M.B. at 66 (December 7, 2016 Hearing Transcript at 1217-18).

PECO responds to the Complainant’s challenge by recognizing that Dr. Marino believes the draft, unpublished May 2016 NTP report should be given a great deal of weight because he is convinced that it was a well-done study. PECO submits, however, that Dr. Davis takes the view that one should wait for the review and publication process to be completed before deciding how much weight to give the study; in the interim, he gives it little or no weight. PECO argues that the results will need to be analyzed and integrated in the context of all other existing research on RF exposure and cancer endpoints. And only then will the experts know what weight to give this research. Until then, PECO respectfully requests that the Commission treat the May 2016 NTP report as a draft, unpublished report. PECO M.B. at 43.

As noted above, PECO also presented the expert opinion testimony of Dr. Israel. As for Dr. Israel’s qualifications, PECO submits that he attended the Albert Einstein College of Medicine, completed an internship and residency at Harvard Medical School, has worked at the National Institute of Health and has been a professor of medicine and medical research at numerous medical schools. He has studied RF fields and health effects. Dr. Israel began to examine the research on EMFs, including RF fields, and health effects during his tenure at the National Cancer Institute more than 25 years ago. He has continued to follow the research literature on this subject since that time. Randall I.D. at 18; PECO M.B. at 48-49 (citing Murphy Rebuttal Testimony of Mark Israel at 5-6). PECO submits that Dr. Israel’s training and experience make him eminently qualified to appear as an expert in this proceeding. PECO M.B. at 49, n.15.

The Complainant argues that Dr. Israel’s knowledge and experience is limited regarding the specific issues that are the focus of these proceedings. The Complainant submits that Dr. Israel has never published any research and has never done any research on the effects of electromagnetic energy. Moreover, the Complainant asserts that Dr. Israel showed unfamiliarity with the May 2016 NTP report and the IARC classification, which, according to the Complainant, demonstrate that his knowledge and understanding of the issues before the Commission are limited and therefore, he is not a reliable source of scientific information about any of the issues before the Commission in this case. Randall M.B. at 65 (citing December 9, 2016 Transcript at 1580).

Dr. Israel testified that he conducted an evaluation of whether exposure to RF fields from PECO’s AMI meters can cause, contribute to or exacerbate the conditions described by the Complainant. Based on his evaluation, Dr. Israel concluded that for each of the symptoms or conditions identified by the Complainant, that there is no reliable medical basis to conclude that RF fields from PECO’s electric AMI meter caused, contributed to, or exacerbated, or will cause, contribute to, or exacerbate, any of the symptoms identified by the Complainant. PECO M.B. at 49-50 (Murphy Rebuttal Testimony of Mark Israel at 11-31). Dr. Israel’s overall medical opinion is that exposure to electromagnetic fields from PECO’s smart meters have not been and will not be harmful to the Complainant’s health. He holds both his symptom-specific and overall medical opinions to a reasonable degree of medical certainty. PECO M.B. at 50 (Murphy Rebuttal Testimony of Mark Israel at 31-32).

The bases for Dr. Israel’s evaluation included the same methodology that he uses in the usual course of his medical work, which included searching medical and scientific databases, analyzing studies identified through that research, evaluating as a whole all of the studies that he determined were relevant to the claimed symptoms, including both positive and negative studies, and review of the findings of public health agencies and organizations to see if they provided any insights Dr. Israel missed and to see if their conclusions were inconsistent with Dr. Israel’s initial determinations. PECO M.B. at 49 (citing Murphy Rebuttal Testimony of Mark Israel at 7).

The Complainant challenges the bases for Dr. Israel’s opinion testimony because he did not cite to a positive study that he relied upon. Randall M.B. at 47 (citing December 8, 2016 Transcript at 1641-42). The Complainant argues that Dr. Israel “cherry-picked studies” only to account for negative studies. The Complainant opines that “almost any study can be designed to show no effect” and that Dr. Israel was unaware whether the studies he cited were funded by industry. Randall M.B. at 47 (citations omitted). The Complainant claims that Dr. Israel relied upon and simply quoted learned treatise and reports of public health agencies in violation of the hearsay rule, citing *Majdic v. Cincinnati Machine Company*, 537 A. 2d 334 (Pa. Super. 1988). Randall M.B. at 57-59. The Complainant also submits that the bases for Dr. Israel’s opinion is troubling because he did not take into consideration the results of the May 2016 NTP report and because he did not give proper weight to the IARC classification. Randall M.B. at 67 (citing December 9, 2016 Hearing Transcript at 1601, 1629-38).

PECO responds to the Complainant’s challenges by stating that Dr. Israel’s testimony was not based exclusively on negative studies, noting that he testified to the methodology that he used and that he explicitly stated that: “For each [symptom or condition], I considered the studies that (1) report an effect and (2) studies that report no effect because that is necessary for a reliable medical evaluation.” PECO M.B. at 39 (citing Murphy Rebuttal Testimony of Mark Israel at 3-5). PECO responds to the Complainant’s hearsay argument that twelve years after the Superior Court issued the *Majdic* ruling, the Pennsylvania Supreme Court issued its Opinion in *Aldridge v. Edmonds*, 750 A.2d 292 (Pa. 2000), in which the Court describe the allowable uses of learned treatises in expert testimony. PECO M.B. at 41 (quotation omitted). PECO submits that Dr. Israel testified that he first forms a preliminary opinion based on research and analysis of primary research, then he reviews the reports of public health agencies and similar organizations to see if they provide any insights Dr. Israel missed and to see if their conclusions are inconsistent with Dr. Israel’s initial determinations. He then makes his final medical evaluation. PECO submits his use of these reports is proper under *Aldridge* because the findings of the reports are used by Dr. Israel as the basis for his opinion and are not admitted in this proceeding as evidence of the truth of the matters asserted therein. PECO M.B. at 42.

Regarding the IARC classification of electromagnetic energy as a “possible” carcinogen, PECO submits that Dr. Israel provided context for understanding this classification:

IARC said that there was limited evidence that radio frequency fields could contribute to cancer and there was limited evidence in animals and those criteria that there’s not sufficient evidence to identify it as a probable cause, because there’s limited evidence in humans and limited evidence in animals, it gets designated as a category 2B which stands for “possible.” I’ve always been uncomfortable with “possible” because “possible” to me is misleading to the population that I have to take care of because I think what IARC means is that there’s limited evidence in humans and limited evidence in animals. “Possible” in the lay language of the people I have to take care of, means my God it might be possible or oh, well anything is possible, so I should pay attention to this. So, I really always focus when I talk to people about the fact there just isn’t evidence to identify this as even a probable carcinogen.

PECO M.B. at 37 (citing December 9, 2016 Transcript at 1630-31).

No further evidence was offered into the record by the Complainant to rebut the evidence presented by PECO.

#### ALJ’s Initial Decision

The ALJ noted that it is the position of the Complainant that installation of an AMI meter would be, unsafe and unreasonable in violation of 66 Pa.C.S. § 1501 and 52 Pa. Code § 57.194 because these meters emit EFs that are detrimental to her health. Randall I.D. at 10. The ALJ determined that the Complainant established a *prima facie* case, Randall I.D. at 18, based on the following evidence presented by the Complainant:

* Dr. Anne Honebrink’s testimony, in which she stated that it would be prudent for Ms. Randall to avoid unnecessary radiation exposure. Randall I.D. at 16-17.
* Dr. Hanoch Talmor’s testimony in these proceedings, in which he stated that exposure to a smart meter could be harmful and should be avoided. Randall I.D. at 17 (citing Direct Testimony of Dr. Hanoch Talmor, M.D. at 5).
* Dr. Marino’s testimony, which included his opinion that there is a clear basis in established science for the conclusion that Ms. Randall could be in or exposed to

danger if exposed to the emissions emitted by the PECO AMR or AMI meters. Randall I.D. at 17 (citing September 15, 2016 Tr. at 578).

Randall I.D. at 17.

The ALJ then turned to a review of PECO’s rebuttal presentation of evidence and concluded that the preponderance of the evidence was presented by PECO. Randall I.D. at 23. The ALJ relied upon the following testimony from Dr. Mark Israel:

* Dr. Israel conducted an evaluation of whether exposure to RF fields from PECO’s AMI meters can cause, contribute to, or exacerbate the conditions described by Ms. Randall. In that evaluation, he used the same methodology that he uses in the usual course of his medical work, which included searching medical and scientific databases, analyzing studies identified through that research, evaluating as a whole all of the studies that he determined were relevant to the claimed symptoms, including both studies that showed an effect and studies that did not show an effect, and reviewing the findings of public health agencies and organizations to see if they provided any insights Dr. Israel missed and to see if their conclusions were inconsistent with his initial determinations. He then made his final medical evaluation. Randall I.D. at 19 (citing Murphy Rebuttal Testimony of Mark Israelat 7).
* Dr. Israel conducted the above-described evaluation for each of the symptoms or conditions identified by the Complainant and concluded, for each such symptom, that there is no reliable medical basis to conclude that RF fields from PECO’s electric AMI meters caused, contributed to, or exacerbated, or will cause, contribute to, or exacerbate, any of the symptoms identified by Complainant. Randall I.D. at 19 (citingMurphy Rebuttal Testimony of Mark Israelat 11-31).
* Dr. Israel offered his overall medical opinion that exposure to EMFs from PECO’s AMI meters has not been and will not be harmful to the Complainant’s health, holding both his symptom-specific and overall medical opinions to a reasonable degree of medical certainty. Randall I.D. at 20 (citing Murphy Rebuttal Testimony of Mark Israelat 31-32).

The ALJ also relied upon the following testimony from Mr. Pritchard:

* Mr. Pritchard testified that while PECO itself did not perform any tests on humans to evaluate the safety of smart meters, PECO ensured that the smart meters were FCC compliant. Randall I.D. at 20 (citing Cross Examination of Glenn Pritchard, December 6, 2016, Hearing Tr. at 1031-1032).

The ALJ relied upon the following testimony from Dr. Davis:

* Dr. Davis testified that the FCC has promulgated limits for the maximum permissible exposure to RFs emitted by a smart meter as 0.6 mW/cm2, calculated as an average exposure over time. Randall I.D. at 20 (citing Murphy Rebuttal Testimony of Christopher Davis at 13).
* Dr. Davis testified that, based on his calculations, the average exposure from PECO’s electric AMI meters is millions of times less than the FCC maximum permissible exposure levels. Randall I.D. at 21 (citing Murphy Rebuttal Testimony of Christopher Davis at 15-16).
* Based on his calculations, the peak exposure from PECO’s electric AMI meters is approximately 40 times smaller than the FCC limit for 30-minute average exposure. Randall I.D. at 21 (citing PECO St. 3R at 16; PECO Exh CD-3).
* Dr. Davis also testified that the exposure from PECO’s AMI meters is also millions of times less than the guidelines published by the International Commission on Non-Ionizing Radiation Protection. Randall I.D. at 21 (citing PECO St. 3R at 16-17; PECO Exh. CD-4).
* Dr. Davis did not find that the Complainant has an electromagnetically quiet home. He stated that in everyday life, people are exposed to radiofrequency filed levels from many sources that are much higher than the radiofrequency fields associated with PECO’s AMR or AMI meters. Randall I.D. at 21 (citing Murphy Rebuttal Testimony of Christopher Davis at 17). Dr. Davis testified that given even the limited cell phone use of the Complainant, her exposure to radiofrequency fields from cell phones is markedly greater than that from AMI meters. Randall I.D. at 22 (citing Murphy Rebuttal Testimony of Christopher Davis at 18).

The ALJ noted that at the time of the Complaint, Ms. Randall believed that she had an analog meter at her residence, rather than the AMR meter installed by PECO in about the year 2000. Randall I.D. at 22 (citing Testimony of Cynthia Randall, September 27, 2016, Complainant Exh. A). Dr. Davis testified that the AMI meter will emit 83% less radiofrequency fields than does the AMR meter currently at the Randall/Albrecht residence. Randall I.D. at 22 (citing Murphy Rebuttal Testimony of Christopher Davis at 18). The ALJ provided that this is a reduction of risk, if any, to Dr. Randall. The ALJ provided further that in Dr. Davis’ expert opinion, to a reasonable degree of scientific certainty, there is no reliable scientific basis to conclude that exposure to radio frequency fields from PECO’s AMI meters is capable of causing any adverse biological effects. Randall I.D. at 22 (citing Murphy Rebuttal Testimony of Christopher Davis at 24-25).

With regard to the AMI meter, the ALJ reasoned that

PECO selected and installed smart meters that meet FCC maximum exposure to EFs limits. The ALJ noted that the amount of EFs that emanate from the PECO smart meter is millions of times smaller than the limit allowed by the FCC. According to the ALJ, it was reasonable for PECO to seek to install these meters in accordance with the Act 129 installation plan approved by the Commission. Randall I.D. at 22.

The ALJ found that the expert testimony weighed in favor of finding that smart meter EF exposure would not be harmful. The ALJ further noted that Dr. Marino would not say definitively that the EFs from the PECO smart meter would cause harm. Randall I.D. at 23 (citing Direct Testimony of Dr. Andrew Marino, September 15, 2016 Hearing Tr. at 644-645). The ALJ states that Dr. Davis and Dr. Israel were definitive that they would not. The ALJ concluded that the Complainant did not present any evidence to overcome the testimony of Dr. Israel and his certainty that the EFs emitted from the AMI meter would not cause, contribute to, or exacerbate the conditions of concern to Dr. Randall. Randall I.D. at 23.

#### Exceptions and Replies

In her first, second, third, fourth and eighth Exceptions, the Complainant takes exception to the ALJ’s conclusion that the Complainant has not met her burden of proof in this proceeding with respect to showing that a PECO smart meter is unsafe because of its RF exposure levels to customers. We discuss the Complainant’s first, second, third, fourth and eighth Exceptions, and PECO’s Replies thereto, in more depth in our disposition in the next section below.

#### Disposition

Upon review of the evidentiary record and the positions of the Parties, we shall deny the Complainant’s first, second, third, fourth and eighth Exceptions. We agree with the ALJ’s conclusion that the Complainant failed to meet her burden of proof in this proceeding, but respectfully for different reasons, as explained below.

To begin, in our opinion, we are forced to give little weight to the testimony of Complainant’s treating physician, Dr. Ann Honebrink. Importantly, the Complainant submitted that she did not offer Dr. Honebrink’s testimony on the issue of causation.[[20]](#footnote-20) While Dr. Honebrink wrote, at Ms. Randall’s request, in an April 20, 2016 letter to PECO that “it would be prudent to avoid any unnecessary radiation exposure,” Dr. Honebrink could not say that the PECO AMI meter can cause or exacerbate cancer. September 27, 2016 Tr. at 16, 24. When Dr. Honebrink was asked: “In your opinion, has it been scientifically demonstrated that RF fields from the PECO AMI meter can cause cancer?” She responded, “I really don’t have an opinion on that because I have not studied the PECO fields.” She was further asked: “In your opinion, has it been scientifically demonstrated that RF fields from the PECO AMI meter can exacerbate cancer?” She answered, “Again, that is not something I have specifically studied.” PECO M.B. at 35 (citing September 27, 2016 Tr. at 29).

Thus, based on Dr. Honebrink’s testimony, we are unable to find the Complainant has proven by a preponderance of the evidence the allegation in her Complaint that she is medically vulnerable to RF exposure or that the PECO AMI meter would be “exceedingly harmful to the health and well-being” of the Complainant. Complaint at ¶¶ 28, 29.

Next, while Dr. Marino is clearly qualified as an expert on the issue of causation in this case based on his specialized knowledge, skill, experience in this area of science and his education in biophysics,[[21]](#footnote-21) Dr. Marino’s first opinion does not, in our view, constitute an unequivocal opinion to support a finding that the exposure levels to the RF energy from a PECO smart meter installed and used at her residence will cause adverse health effects for the Complainant. The Complainant concedes in argument that its expert has not proven a conclusive causal connection between the RF emissions from a PECO smart meter and adverse health effects for the Complainant. “Dr. Marino is of the opinion that [RF fields] from a PECO smart meter could cause harm to the health of [Ms. Randall], but he could not say whether it will cause harm.” Randall M.B. at 32 (citing September 15, 2016 Tr. at 644). “Dr. Marino also testified that, because there is no consensus clinical diagnosis, he could not testify whether RF exposure did cause or will cause adverse health consequences for the Complainants.” Randall R.B. at 18.

In our view, Dr. Marino’s testimony, at best, supports the conclusion that the Complainant’s *alleged* medical vulnerability *might* be exacerbated if subjected to the low-level RF fields from a PECO smart meter installed at her residence. However, Dr. Marino admits that he has no basis to state the opinion that it will cause adverse health effects for the Complainant. September 15, 2016 Transcript at 643-44. Recognizing that Dr. Marino was not required to testify to an absolute certainty as to causation and eliminate all other possible causes, Dr. Marino’s opinion does not constitute an unequivocal opinion to a reasonable degree of certainty that the low-level RF fields from a PECO smart meter will adversely affect the Complainant’s health. *See Halaski v. Hilton Hotel*, 487 Pa. 313, 409 A.2d 367, 369, n.2 (Pa. 1979) (*Halaski*) (quoting *Menarde v. Philadelphia Transportation Co.,* 376 Pa. 497, 501, 103 A.2d 681, 684 (1954) (“[T]he expert has to testify, not that the condition of claimant might have, or even probably did, come from the cause alleged, but that in his professional opinion the result in question came from the cause alleged. A less direct expression of opinion falls below the required standard of proof and does not constitute legally competent evidence.”). Accordingly, his opinion falls below the required standard and burden of proof and does not constitute legally competent evidence to support a finding of fact on the issue of a conclusive causal connection between RF fields from an AMR or AMI meter and adverse human health effects.

Based on the foregoing analysis and discussion, we believe the Complainant’s evidence is not sufficient to establish a *prima facie* case under 66 Pa. C.S. § 332(a) in demonstrating that the RF exposure levels from a PECO AMI meter will cause adverse health effects for the Complainant. Accordingly, we respectfully disagree with the ALJ on this point and we shall modify the ALJ’s Initial Decision consistent with the discussion above. However, for the sake of providing a full analysis and discussion of the record, assuming the Complainant’s evidence is sufficient to carry the burden of proof initially, we agree with the ALJ that PECO credibly carried its burden of production in rebuttal for the reasons discussed below.

PECO’s rebuttal evidence included the expert testimony of Dr. Davis and Dr. Israel. Dr. Davis is a qualified expert[[22]](#footnote-22) to testify on the issues in this proceeding, including, *inter alia*, on the scientific or technical principles relevant to the case, the RF field levels emitted from the AMI meter at issue in this case, the FCC’s process in establishing and maintaining current RF exposure limits, and the dosimetry utilized in relevant scientific studies.[[23]](#footnote-23) In our opinion, Dr. Davis’ testimony sufficiently demonstrated that the limits on RF emissions that are established and maintained by the FCC are both relevant and persuasive to our review of the issue of whether low-level RF exposure is harmful to human health and therefore unsafe. Dr. Davis explained that the FCC sets exposure limits for devices like smart meters that emit RF energy. Dr. Davis’ testimony, as discussed *supra*, sufficiently explained how the FCC limits were established and explained the FCC’s process for establishing and maintaining these limits. Specifically, Dr. Davis testified that the FCC has consulted and continues to consult closely with other federal agencies that have authority in the areas of health and safety, including the FDA, OSHA and NIOSH. Dr. Davis explained that in setting its standards, the FCC considered claims of both thermal and non-thermal effects; however, it set the standards to avoid thermal effects because the scientific studies did not show any non-thermal effects. Dr. Davis further explained that while the FCC continues to consider whether there are adverse biological effects from non-thermal exposure levels, *i.e*., low-level RF exposure, the FCC considers the scientific evidence for such effects to be “ambiguous and unproven” but that “further research is needed to determine the generality of such effects and their possible relevance, if any, to human health.” Dr. Davis also explained that the FCC keeps current on claims that RF fields can cause non-thermal effects; however, it does not believe that such claims have been demonstrated sufficiently to warrant change to the FCC standards. Dr. Davis explained that the FCC’s ongoing review is done in coordination with the government agencies that oversee health and safety. PECO M.B. at 45-46 (citing Murphy Rebuttal Testimony of Christopher Davis at 13-16).

Dr. Davis’ testimony, including his calculations that were attached to his testimony as exhibits,[[24]](#footnote-24) sufficiently demonstrated that the RF field exposure from a PECO smart meter, when considered either at an average or a peak level, is significantly lower than the FCC’s limit. Murphy Rebuttal Testimony of Christopher Davis at 15-16; PECO Exh CD-2, CD-3; Randall I.D. at 21.

Dr. Israel also is a qualified expert on the issues in this proceeding. [[25]](#footnote-25) He offered his expert opinion on the issue of the causal connection between low-level RF exposure from a PECO smart meter and adverse human health effects. Dr. Israel’s opinion was offered to a reasonable degree of medical certainty based upon his review of available scientific studies, research and reports. His expert opinion stated unequivocally that exposure to the low-level RF fields from a PECO smart meter will not be harmful to the Complainant’s health. Dr. Israel’s unequivocal opinion meets PECO’s required burden of production and constitutes legally competent evidence to support a finding of fact on the issue of a causal connection between RF fields from an AMI meter and adverse human health effects.

In Briefs and in Exceptions, the Complainant challenged the qualifications of PECO’s experts, the bases of their opinions and certain specific areas of their testimonies. After careful review of those challenges, however, we agree with the ALJ that the Complainant did not successfully impugn PECO’s rebuttal evidence. We discuss below our specific reasons for this conclusion when we specifically address the Complainant’s first, second, third, fourth and eighth Exceptions below. Accordingly, we affirm the ALJ’s conclusion that PECO met its burden of production in this proceeding.

Because PECO met its burden of evidence production, the burden of production shifted back to the Complainant. The Complainant did not introduce further evidence into the record to demonstrate a conclusive causal connection between the low-level RF fields from a PECO AMI meter and adverse health effects for the Complainant. Thus, we affirm the ALJ’s conclusion that the Complainant did not meet her burden of proof in this proceeding.

We now turn to address more specifically the Complainant’s first, second, third, fourth and eighth Exceptions.

#### Complainant’s Exception No. 1 and Disposition

In the first Exception, the Complainant states that the ALJ “erred in placing weight on the testimony of Dr. Israel and Dr. Davis on numerous important points where they disagreed with Dr. Marino.” The Complainant provides that “this was arbitrary and capricious because Dr. Marino has far deeper and stronger qualifications on the issue of the health risk from smart meter RF exposure than Dr. Israel and Dr. Davis.” The Complainant describes Dr. Marino’s qualifications and argues that the credentials of PECO’s expert witnesses in this field were much more limited or nonexistent. Randall Exc. at 7-8 (citing Randall M.B. at 36-37, 64-65, 70). For this reason, the Complainant asserts that the ALJ should have accepted Dr. Marino’s testimony and rejected the testimony of Dr. Davis and Dr. Israel where the testimonies conflicted. Randall Exc. at 8.

In Replies to the Complainant’s first Exception, PECO reiterates the relevant qualifications of its witnesses as summarized above. PECO R. Exc. at 6 (citing Murphy I.D. at 13, 15, 27, 29). PECO also notes that the Complainants did not identify any specific instance in which they claim that Dr. Marino’s testimony should have been given greater weight but claimed there were “numerous important points” about which the expert witnesses disagreed and on which they assert the ALJ was required to believe Dr. Marino. PECO R. Exc. at 6.

Upon review, we disagree with the Complainant’s assertion that Dr. Marino is uniquely qualified to testify on the issues in this proceeding. As the ultimate fact-finder, we accept the qualifications of the three expert witnesses and determine that all three witnesses have the scientific, technical, or other specialized knowledge to allow them to provide expert testimony on the issues in this proceeding in accordance with Pa.R.E. 702, as discussed in more detail above. Furthermore, we note that the Complainant did not identify any specific “important points” where Dr. Marino’s testimony should have been more persuasive to the ALJ. Because the Complainant did not identify any specific instances where Dr. Marino’s testimony should have prevailed, we can only surmise that the ALJ found Dr. Davis’ and Dr. Israel’s testimony to be persuasive in some instances where the Complainant does not agree. Accordingly, we shall deny the Complainant’s Exception No. 1.

#### Complainant’s Exception No. 2 and Disposition

In the second Exception, the Complainant contends that it was “arbitrary and capricious” for the ALJ to not accept the evidence presented by the Complainant that forced exposure to RF presents a risk of harm to her. The Complainant explained that this evidence included the testimony of Dr. Andrew Marino based on many years of research, including animal studies, epidemiological studies, the EHS study, and other relevant research, as well as his reliance on the draft 2016 NTP Report. Randall Exc. at  8. In her second Exception, the Complainant walks the Commission through the testimony of Dr. Marino citing to relevant portions of its Main Brief, at 24-35, 60-62, as summarized above under the Position of the Parties. Randall Exc. at 8-10.

The Complainant contends that ALJ Heep failed to recognize that PECO did not rebut Dr. Marino’s testimony about the potential to cause harm based on the peer-reviewed animal and epidemiological studies he relied upon. Randall Exc. at 10 (citing Randall M.B. at 27-29). Likewise, the Complainant submits that PECO did not rebut Dr. Marino’s testimony about the potential to cause harm based on the peer-reviewed EHS study he conducted which proved that EHS is a real syndrome. All of this evidence, submits the Complainant, presented substantial grounds for the conclusion that RF exposure is capable of causing harm. Randall Exc. at 10-11.

The Complainant further submits that the ALJ erred in rejecting the NTP report based on the testimony of Dr. Davis, that the NTP study was a draft and at a high-power density that is not relevant. Randall Exc. at 11-12 (citing RandallI.D. at 21). The Complainant requests the Commission to take “judicial notice” of not only what the draft May 2016 NTP report said, but also what the final NTP report has said since. The Complainant submits:

Specifically, according to its publicly available website, the findings of the 2016 draft report “were reviewed by an expert panel in March 2018….The final NTP reports are expected in fall 2018.”. . . The NTP website also discloses that the external science experts who met in March 2018 “recommended that some [NTP] conclusions be changed to indicate stronger levels of evidence that cell phone radiofrequency (RFR) caused tumors in rats.”

Randall Exc. at 12 (citations omitted).

According to the Complainant, the May 2016 NTP report shows that RF exposure caused cancer in rats under the test conditions, meaning there is a potential for harm to rats from RF exposure below FCC limits, from which potential for harm to humans could be inferred. The Complainant argues further “[t]hat same potential for harm is present for RF exposure from smart meters.” Randall Exc. at 13. The Complainant states that there is no way to compare the potential exposure from a cell phone to that of a smart meter “because there have been no studies on the safety of smart meters.” The Complainant further states that “the potential for harm from these RF-emitting devices is completely unknown.” Randall Exc. at 14. The Complainant avers that the Commission should “accept that RF exposure from smart meters is a possible cause of harm to humans, meaning that some scientific evidence supports the point, but it is not yet accepted as conclusively proven.” Randall Exc. at 15.

In Replies to the Complainant’s second Exception, PECO maintains that Dr. Marino’s testimony does not prove that “forced exposure to RF presents a risk of harm;” to the contrary, it proves that in Dr. Marino’s view, it was too costly to collect evidence and consequently he was not able to present any evidence that “forced exposure to RF presents a risk of harm.” PECO R. Exc. at 7-8. PECO submits that the ALJ correctly accepted, not rejected, this testimony. PECO submits that it should be underscored that the Complainant has frankly admitted throughout this proceeding that she did not meet the burden of proof with respect to causation. PECO R. Exc. at 8. PECO argues that the Complainant misspeaks when it says PECO offered no response at all to Dr. Marino’s testimony. *Id*. Given that Dr. Marino and the Complainant admitted that they had not met burden of proof on causation, PECO did not find it necessary in its briefs to analyze every study that was discussed in the evidentiary hearings. *Id*. PECO maintains, however, that the record contains an extensive, point-by-point, response on the scientific research in the form of the testimony of Drs. Davis and Israel – testimony that the ALJ found to be persuasive and credible. PECO R. Exc. at 8-9.

Regarding the single EHS study, PECO submits that there was no reason that the Initial Decision needed to isolate and discuss this specific study and referred the Commission to its Main Brief at 31, in which PECO explained that Dr. Marino candidly testified that before his EHS study, there were no published studies that any person is able to detect the presence or absence of electromagnetic energy, that his study involved only one subject and that, even taking into consideration his own study, his opinion is that the AMI meter has the potential to “trigger EHS, not cause it, trigger it” but that “I believe my speculation is that’s the case, but I don’t have direct evidence to say that.” PECO R. Exc. at 9 (citing PECO M.B. at 31 (citing September 15, 2016 Transcript at 609, 614 and September 17, 2016 Transcript at 779)).

Regarding the May 2016 NTP report, PECO explains that Dr. Israel testified regarding that report. PECO notes that Dr. Israel had reviewed and analyzed the May 2016 NTP report, found that it had not yet gone through normal peer review process and that it was a draft study of partial results. PECO provides that Dr. Israel placed the NTP results into context with other research and stated that it did not alter his overall conclusions that RF fields from PECO’s AMI meters have not been shown to cause, contribute to, or exacerbate health effects. PECO R. Exc. at 10 (citing Tr. at 1527-29, 1603-17). PECO notes that in his testimony, Dr. Davis concluded that the May 2016 NTP report was not applicable to review of AMI meters because it is at “a relatively high-power density that’s not relevant.” According to PECO, the power densities used in the NTP research were approximately 300 million times greater than the “incredibly low exposures that you get from PECO’s AMI and AMR meters.” PECO R. Exc. at 12-13 (citing Tr. 1090-91).

Upon review, we shall deny the Complainant’s second Exception for the reasons that follow. We disagree with the Complainant’s characterization that the ALJ did not accept the Complainant’s evidence, specifically the expert opinion testimony of Dr. Marino, in this proceeding. To the contrary, the ALJ accepted the expert testimony of Dr. Marino into evidence. As discussed above, after reviewing all of the admitted evidence, including Dr. Marino’s opinions, we conclude that the Complainant did not sustain her initial burden of proof in demonstrating that RF exposure from a PECO AMI meter will cause harm to the Complainant’s health. We also reject the Complainant’s argument that the ALJ erred by finding PECO’s rebuttal evidence sufficient. As discussed above, PECO satisfied its burden of production in this proceeding, which shifted the burden of production back to the Complainant. However, the Complainant failed to submit any additional evidence to demonstrate that the RF exposure from a PECO AMI meter will adversely affect her health and therefore failed to carry her ultimate burden of proof.

Next, we turn to the Complainant’s arguments in her second Exception related to the various studies and reports upon which the experts relied in forming their opinions. To simplify, the Complainant argues we should give greater weight to Dr. Marino’s expert opinion because he considered the correct studies and reports in forming it, specifically Dr. Marino’s EHS study and the May 2016 NTP report. Likewise, the Complainant asserts that we should give little to no weight to the opinion testimony of PECO’s experts because, according to the Complainant, PECO’s experts failed to consider the EHS study and the May 2016 NTP report. The Complainant emphasizes in her Exception No. 2 that the EHS study and the May 2016 NTP report, in particular, are crucially important on the issue of whether the RF exposure from a smart meter is capable of causing harm to human health and that there is no scientific study relied upon by the experts to demonstrate the safety of RF exposure from smart meters.

Before we address the Complainant’s arguments regarding the EHS study and the May 2016 NTP report as the bases for the experts’ opinions in this proceeding, we feel it necessary to provide the proper evidentiary context. The various studies and reports relied upon by the Parties’ experts in forming their opinions and testimonies were disclosed in this proceeding because Pa. R.E. 705[[26]](#footnote-26) requires such disclosure. However, none of these studies and reports, including the EHS study and the May 2016 NTP report, were admitted into the record as legally competent evidence to support a finding of fact in this proceeding. Rather, it was acknowledged at the hearing that all of the referenced studies and reports are simple hearsay because the statements contained therein were produced by third persons outside of the hearing room not subject to cross-examination.[[27]](#footnote-27) Accordingly, the ALJ admitted the various exhibits on direct or cross, not for the truth of the matters asserted therein, but rather for the limited purpose of establishing whether the expert relied upon such study/report in reaching his opinion pursuant to Pa. R.E. 703[[28]](#footnote-28) or otherwise for cross-examination. *See e.g*. December 8, 2016 Hearing Transcript at 1467‑1469. Rule 703 clearly permits an expert’s opinion to be admitted even if it is based on inadmissible hearsay facts or data, so long as experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject. [[29]](#footnote-29) Pa. R.E. 703; *see also*, *supra*, *Aldridge v. Edmonds*, 561 Pa. 323, 750 A.2d 292 (Pa. 2000).

With that context, it is clear from the record that Dr. Marino considered, *inter alia*, the EHS study and the May 2016 NTP report in forming his opinion that there is a basis in established science to conclude that the Complainants could be “exposed to danger”[[30]](#footnote-30) from the RF exposure levels from a PECO AMI meter. Nevertheless, even after considering the aforementioned study and report, as discussed above, Dr. Marino did not provide an unequivocal opinion, provided to a reasonable degree of scientific certainty, that if PECO proceeds with its plan to install and use an AMI smart meter at the Complainant’s residence to measure her usage, the RF exposure from the smart meter will cause harm to the Complainant’s health. Thus, as stated above, Dr. Marino’s first opinion does not meet the standard or burden of proof in this proceeding.

Moreover, the Complainant’s arguments in the second Exception does little to help the Complainant’s case. In discussing the importance of the results of the May 2016 NTP report, the Complainant states with respect to PECO’s smart meters “the potential for harm from these RF-emitting devices is completely unknown” and it offers that this is the case “because there have been no studies on the safety of smart meters.” Randall Exc. at 14. There are two problems with the Complainant’s argument.

First, the Complainant’s assertion that there have been no studies on the safety of smart meters contradicts the record before us.  Dr. Davis formed his opinion based on review of expert panel reports, at least one of which, the New Zealand Expert Ministry report, dealt with smart meters.  December 7, 2016 HearingTranscript at 1459; see also PECO Cross-Examination Exhibit 17.  As Dr. Davis explained, this report concluded that “Thermal effects are the only ones for which there is clear evidence.”  Dr. Davis testified that the findings of the New Zealand Ministry of Health should be considered in evaluating the question of whether RF from PECO’s AMI meters can cause adverse health effects.  December 7, 2016 HearingTranscript at 1546.

Second, the Complainant essentially repeats her argument from her Briefs that because the science is unproven regarding the effects of low-level RF exposure from a smart meter, that it is PECO and this Commission’s statutory duty to deem the smart meter as capable of causing harm. The Complainant continues to advocate for a standard and burden that, as discussed above, is not the standard or burden in this case. Before us is an extensively-developed record by the Parties to demonstrate by a preponderance of the evidence whether or not, based on all the available scientific data, research and studies considered by the experts as of the evidentiary hearing dates, the RF exposure from a PECO smart meter will cause adverse health effects to the Complainant. The evidence submitted by the Complainant in this proceeding – specifically, the expert opinion of Dr. Marino, which was formed based on all available scientific data, research and studies that he considered as of the hearing dates, including, *inter alia*, the EHS study and the draft May 2016 NTP report – simply fell short of the applicable standard and burden in this proceeding because Dr. Marino did not opine that the RF exposure from an AMI meter will cause harm to the Complainant’s health.

Furthermore, contrary to the Complainant’s characterization, our review of the record demonstrates that PECO’s experts did, in fact, consider the EHS study and the May 2016 NTP report in providing their opinions and testimony. As to Dr. Marino’s EHS study, Dr. Davis testified that the types of signals Dr. Marino used were not the same as what comes out of PECO’s AMI meters, but were much more intense signals that repeated on/off periods more frequently than a PECO AMI meter. Dr. Davis stated that the signal pattern used by Dr. Marino was totally different from that emitted by an AMI meter. Dr. Davis testified that because of the differences in intensity and types of signals, Dr. Marino’s study has no relevance to PECO’s AMI meters. December 6, 2016 Hearing Transcriptat 1107-1108. Meanwhile, Dr. Israel testified that is was not possible to assign some level of significance to the results of a study conducted on only one person. Dr. Israel stated, “We actually identify such studies as case reports or we talk about them as anecdotes. I think it can be an interesting story, but it has to be given appropriate weight, which is very little, in thinking about medicine and medical issues, because a study of one person doesn’t really allow you not only to have much confidence in the findings, but also how to extrapolate a population.” December 8, 2016 Hearing Transcript at 1547 – 1548.

Regarding the May 2016 NTP report, at the time of the hearing, the NTP Report was in draft form. Dr. Davis testified that the methodology of the May 2016 NTP report was not relevant to the RF exposure from a smart meter because the power densities used in the NTP study were extraordinarily high in comparison to the potential exposure from a PECO AMI meter. Dr. Davis testified as follows:

“[T]he interesting thing that I noticed about it is that it exposed mice and rats to radiation in the 900 megahertz range, and the lowest exposure that he used was nearly 20 times greater than the FCC whole body average. So it may well be that it’s a study that’s been done at a relatively high power density that’s not relevant, certainly not relevant to the incredibly low exposures that you get from PECO’s AMI and AMR meter.”

December 6, 2016 Hearing Transcript at 1090. When asked how that exposure compares to the exposure from a PECO AMI meter at a distance of one meter, Dr. Davis testified that “it comes out to be about 300 million times smaller.” December 6, 2016 Hearing Transcript at 1091. As Dr. Davis testified, the NTP studies were done on rats and mice at a higher energy density than the FCC limits. Dr. Davis also noted several potential problems with the May 2016 NTP study as follows:

First of all, the species of rat chosen in the study are a species that is designed to get cancer normally. My understanding of the study is that the percentage of rats that got cancer in the study that were RF exposed is the same you would get in a normal population of these rats that were not exposed. In the study, the rats that were exposed, lived longer than the controlled animals and 40 percent of the controlled animals died.

December 7, 2016 Hearing Transcript at 1282. Dr. Davis also testified that it was not possible to prove conclusively that any biological effect would be adverse in humans based solely on animal studies. December 7, 2016 Hearing Transcript at 1208.

Dr. Israel, meanwhile, testified that he took the May 2016 NTP report into consideration, but it did not change his opinion and noted that he did not give it the weight he would give a final, peer-reviewed report. December 8, 2016 Hearing Transcript at 1527-28; December 9, 2016 Hearing Transcript at 1614. When he was asked to ignore, for argument’s sake, that the May 2016 NTP report was in draft form and to consider if one study like the May 2016 NTP report could decide the question of whether RF fields cause cancer, Dr. Israel stated, “One study of an exposure and measurement of some outcome I don’t think could ever show, at least in terms of what scientists and physicians ask about causation, no one study could show causation.” December 8, 2016 Hearing Transcript at 1528. Moreover, Dr. Israel testified that he took possible issue with the characterization of the May 2016 NTP report as having been “peer-reviewed.” It was explained during cross-examination by the Complainant’s counsel that the May 2016 NTP report was reviewed by experts selected by the National Institute of Health, but Dr. Israel explained that “peer review in our world has a very special meaning. This would not qualify as peer review in the world that I live in as a scientist. Peer review is done by experts that are anonymously chosen by either an editor, or a department head, or a chairman of a granting agency, and the anonymity is considered a key part of the peer review process.” December 9, 2016 Hearing Transcript at 1614-15.

Thus, our review of the record indicates that PECO’s experts did, in fact, consider Dr. Marino’s EHS study and the May 2016 NTP report in forming their expert opinions and testimony in this proceeding, along with all the other studies and reports that were disclosed in this proceeding as having been relied upon by PECO’s experts. While PECO’s experts did not weigh the EHS study and May 2016 NTP report the same as the Complainant’s expert, they sufficiently explained their reasons for giving less weight to this information in forming their opinions. As discussed more extensively above, the evidence offered by PECO through its experts satisfied PECO’s burden of production in this proceeding. Accordingly, we reject the Complainant’s argument in her second Exception that PECO failed to meet its burden of production.

Finally, we acknowledge that the Complainant requests in the second Exception that we take “judicial notice” of the fact that, subsequent to the close of the record, the final NTP report was expected to be released in the fall of 2018 and that the NTP website expected some of the conclusions to be changed to indicate stronger levels of evidence that cell phone RF fields caused tumors in rats. We take official notice that a final NTP report was released in November 2018, but it is not an appropriate use of the “official notice” doctrine[[31]](#footnote-31) to do as the Complainant requests because the record demonstrates that the substance of what the final NTP report says and the weight it should be given by an expert are not obvious and notorious to an expert in this agency’s field. With that said, we recognize that it is possible for the science related to the question of low-level RF exposure and human health to evolve and for new studies and reports to be published following the close of the record in this proceeding. It has been nearly three years since the Complaint was filed by the Complainant in April 2016 and multiple days of evidentiary hearings have been held. We cannot forever hold in abeyance a decision on this matter in recognition that the next piece of scientific evidence or study may bring to light information that was not considered by the experts as of the close of the evidentiary record. Should either Party determine that there is a material change in the underlying science that would change the facts in this proceeding, the procedural and substantive rights of the Parties appearing before this Commission are protected under our Regulations, at 52 Pa. Code § 5.571 (allowing parties to petition to reopen a record prior to a final decision for the purpose of taking additional evidence because material changes of fact have occurred since the conclusion of the hearing) and 52 Pa. Code § 5.572 (allowing parties to petition for rehearing after a final decision). We note that since the final NTP report was released in November 2018, as of the entry date of this Order, which is shown on the last page of this Order, the Complainant has not filed a petition under 52 Pa. Code § 5.571 seeking to reopen the record for the purpose of taking new or additional evidence in light of the conclusions stated in the final NTP report.

Based on our review of the record and the foregoing discussion and analysis, we shall deny the Complainant’s Exception No. 2.

#### Complainant’s Exception No. 3 and Disposition

In her third Exception, the Complainant argues that the ALJ erred by: (1) not accepting Dr. Marino’s testimony regarding background electromagnetic exposure at the Complainant’s residence; (2) relying upon Dr. Davis’ calculations because they compare peak to average exposures; (3) relying upon Dr. Davis’ calculations of average exposure from an AMI smart meter over the course of 24 hours; and (4) by relying upon the FCC’s limits because they have not been updated in decades. Randall Exc. at 15-19 (citing Randall I.D. at 5-6, 9, 21-22; Randall M.B. at 24-25, 30-45, 62-63; Randall R.B. at 35-36).

In Reply, PECO submits that all of these arguments can be dismissed based on responses provided in PECO’s Main Brief. First, PECO counters that Dr. Marino’s testimony regarding background electromagnetic exposure should be doubted because Dr. Marino did not do any measurements or calculations of background or ambient fields at the Complainants’ residences or places of work, and Dr. Davis testified that people’s exposure to fields from everyday sources, including UHF radio stations, is much higher than fields from PECO’s AMI meters. PECO R. Exc. at 13 (citing M.B. at 28-30). Second, PECO explains that Dr. Davis’ testimony regarding exposure was based on the average exposure to allow for comparison with the FCC limit that is also based on average exposure over time. PECO explains further that Dr. Davis also compared the peak emissions from the AMI meters to the FCC limit and demonstrated that even the peak emissions are 37.5 times smaller than the exposure that is allowed on an average basis. PECO R. Exc. at 14 (citing PECO M.B. at 28-20, Murphy St. 3 (Davis), Exh. CD‑3). Third, PECO argues that the record demonstrates that the FCC continues to re-evaluate the science impacting its limit but has found the scientific evidence regarding adverse biological effects from non-thermal exposure levels as “ambiguous and unproven.” PECO R. Exc. at 14 (citing PECO M.B. at 45-46).

Upon review, we shall deny the Complainant’s third Exception for the reasons discussed below. As an initial matter, we are not persuaded by Complainant’s argument that the FCC standard is outdated and therefore not protective of human health. The record demonstrates, through Dr. Davis’ testimony, as discussed above, that the FCC, in establishing and maintaining its current standard, has worked and continues to work with other federal agencies that have authority in health and safety in evaluating scientific research on low-level RF exposure and human health. The FCC has concluded that the scientific evidence regarding adverse biological effects from non-thermal exposure levels is “ambiguous and unproven” but that “further research is needed to determine the generality of such effects and their possible relevance, if any, to human health.” Thus, we find that the FCC’s limits on RF fields from AMI meters are relevant to our review of whether the RF exposure levels from PECO’s smart meter are safe.

Moreover, because the FCC’s limits are established based on average exposure, Dr. Davis’ calculations of average exposure from a PECO smart meter are relevant. PECO must present its data in the same format to provide for an “apples to apples” comparison in order to determine if the PECO AMI meters are in compliance with the FCC limit.

We reject the Complainant’s argument that Dr. Davis’ calculated average exposure levels from a smart meter are misleading given that FCC exposure limit is calculated as an average over 30 minutes while Dr. Davis calculated the average over a 24-hour period.  Dr. Davis explained his reasoning for averaging the meter emissions over 24 hours: “Well since these meters only transmit perhaps six times a day, you would have to say well what 30 minutes are you going to average over. Because you could average over 30 minutes when the meter is not transmitting and then the average would be zero. I’m just looking at the chronic overall time exposure from these meters.” December 7, 2016 HearingTranscript at 1246. We find that Dr. Davis’ averaging time to be reasonable. A thirty-minute average could be zero as Dr. Davis explained. In our opinion, averaging over twenty-four hours provides a realistic data point for comparison with the FCC limit.

Dr. Davis also provided a calculation of the peak transmission from the AMI meter. As we can see from Table 1 below, Dr. Davis’ peak calculation agrees closely with Dr. Marino’s calculation of peak RF emissions. Dr. Davis’ peak value was also below the FCC limit. We note that as Mr. Pritchard testified, the meter transmits six to seven times per day in Ms. Randall’s neighborhood for a 70-millisecond duration each time.[[32]](#footnote-32) Thus, even if the AMI meter transmitted continuously at its peak level for the entire 30 minutes, rather than at its actual length of time of less than one second/day, it would be in compliance with the FCC limit.

Table 1

Comparison of FCC Limit and PECO AMI Meter Transmission Levels

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | FCC Maximum Permissible Exposure Limit for General Population – 30 min average  47 C.F.R. § 1.1310 (2013) | Peak Transmission Level –  Davis CD-3 | Peak Transmission Level -  Marino Direct 1 | Average Transmission Level –  Davis CD-2 |
| FlexNet Meter only  (ZigBee trans-missions are negligible) | 0.6 mW/cm2 | 0.016 mW/cm2 | 0.18 mW/cm2 | 7.8 x 10-8 mW/cm2 |

Moreover, Dr. Davis testified that PECO’s AMR meter provides 83% more RF exposure at average levels than an AMI meter. PECO St. 2 at 5, PECO Exh. CD-8. Dr. Davis also testified that the peak values of AMI exposure, which is the basis of the Complainant’s theory in this case, is twice as high as peak value of AMR exposure, and as shown above, AMI peak exposure is below the FCC’s limit.

Based on the foregoing discussion, we shall deny the Complainant’s Exception No. 3.

#### Complainant’s Exception No. 4 and Disposition

In her fourth Exception, the Complainant states that the ALJ erred in accepting PECO’s position that there is no reliable scientific basis for concluding that RF exposure is capable of causing any adverse biological effects in humans. Randall Exc. at 19 (citing Randall I.D. at 23). The Complainant submits that Dr. Davis took an unusually stark position that he is “absolutely certain” that low-level RF exposure cannot cause harm even if children are chronically exposed to it. Randall Exc. at 20. The Complainant argues that Dr. Davis incorrectly ignored the May 2016 NTP report, which, according to Complainant, shows that there is reliable scientific evidence of possible biological effects on humans from RF exposure at levels below the FCC limit. Randall Exc. at 21. The Complainant notes that both Dr. Davis and Dr. Israel were incorrect in their assessments of the IARC classification of RF as a possible carcinogen. The Complainant notes that Dr. Davis disagreed with the IARC classification. The Complainant states that the ALJ erred in accepting Dr. Israel’s reading of the IARC classification to mean no evidence of cancer risk. Randall Exc. at 21-22 (citing Randall M.B. at 67).

In Replies, PECO provides further explanation of Dr. Davis’ conclusion that the FCC deems the science ambiguous and unproven regarding potential adverse health effects from low levels of exposure to RF emissions. PECO explains that the FCC states that proof of harmful biological effects is ambiguous and unproven because the FCC makes it clear that “further research is needed to determine the generality of such effects and their possible relevance, if any, to human health.” PECO R. Exc. at 15 (citing FCC’s online FAQ). Regarding the IARC classification that radio frequency fields are a “possible” carcinogen, PECO explains that Dr. Israel provided context for understanding, referring back to its Main Brief, p. 37, as discussed above.

Upon review, we shall deny the Complainant’s fourth Exception for the reasons that follow. As discussed above, Dr. Davis testified that the FCC’s stated conclusion that proof of harmful biological effects from low-level RF exposure is “ambiguous and unproven” but that “further research is needed to determine the generality of such effects and their possible relevance, if any, to human health.” Moreover, Dr. Davis provided testimony about the scientific and technical principles relevant to this case, including his analysis of the power densities and pulse patterns used in certain underlying scientific studies, such as the EHS study and May 2016 NTP report, as compared to the actual exposure from a PECO AMI meter.

Additionally, regarding the IARC classification that RF fields are a “possible” carcinogen, the record reflects that Dr. Israel provided context for his understanding of this classification. Having considered the IARC classification, among other information, Dr. Israel still provided his unequivocal opinion that there is no reliable medical basis to conclude that RF fields from PECO’s electric AMI meter caused, contributed to, or exacerbated, or will cause, contribute to, or exacerbate, any of the symptoms identified by the Complainant. Murphy Rebuttal Testimony of Mark Israel at 11-32. Dr. Israel’s overall medical opinion is that exposure to RF fields from PECO’s smart meters have not been and will not be harmful to the Complainant’s health. He held both his symptom-specific and overall medical opinions to a reasonable degree of medical certainty. Murphy Rebuttal Testimony of Mark Israel at 32. Dr. Davis’ testimony and Dr. Israel’s opinion constitute legally competent evidence that satisfied PECO’s burden of production in this proceeding. Based on the foregoing discussion and analysis, we shall deny the Complainant’s Exception No. 4.

#### Complainant’s Exception No. 8 and Disposition

In her eighth Exception, the Complainant avers that ALJ Heep failed to give any weight to the Complainant’s testimony about her medical vulnerability to RF exposure or to Dr. Honebrink’s recommendation that Complainant avoid RF exposure from PECO’s smart meter. The Complainant states the Commission lacks the authority to override the decision of the Complainant and her doctor about her health risks from smart meter exposure. Randall Exc. at 28 (citing Randall I.D. at 5-6). The Complainant explains that there is no precedent for the Commission to override the judgement of medical professionals. According to the Complainant, neither the utility nor the Commission’s attempt to second guess the medical judgment of physicians who treat non-paying utility customers when they submit medical certificates in order to prevent the utility from shutting off their power. The Complainant asserts that the Commission should not permit the second guessing of medical judgement here. Randall Exc. at 29 (citing 66 Pa. C.S. 1406(f)).

In Replies, PECO asserts that the Randall I.D. does not override the judgement of medical professionals. PECO provides that the testimony from the treating physicians does not support the Complainant’s burden of proving that they were or will be harmed by PECO’s smart meters. PECO R. Exc. at 2324.

Upon review, we shall deny the Complainant’s eighth Exception. As discussed above, the Complainant had the burden of proving the allegations in her Complaint and that the utility is responsible for the problem. Specifically, the Complainant was required to demonstrate by a preponderance of the evidence that she is “medically vulnerable”, as she alleged in her Complaint, and that PECO’s use of an AMI meter at her residence will cause harm to her health, also as she alleged in her Complaint. While we accepted the testimony of Ms. Randall and her treating physician, Dr. Honebrink, the Complainant nevertheless did not meet her burden of demonstrating that she is a medically vulnerable customer of PECO, as explained above. Moreover, as discussed extensively above, the Complainant’s expert witness on causation, Dr. Marino, would not state unequivocally that a PECO AMI meter would cause harm to the Complainant’s health.

Finally, we wish to address the Complainant’s argument regarding medical certificates permitted under 66 Pa. C.S. § 1406(f), 52 Pa. Code § 56.11. The use of a medical certificate to avoid shut-off is a protection afforded by statute and Regulation for a utility customer or a member of the customer’s household who is seriously ill or afflicted with a medical condition that will be aggravated by cessation of service. There has been no fact established in this proceeding to demonstrate that a cessation of electric utility service by PECO would aggravate the Complainant’s alleged health condition of medical vulnerability. To the contrary, the Complainant has unsuccessfully tried to establish the fact that a continuation of her electric utility service that would include the installation and use of an AMI meter at her residence to measure her consumption would aggravate the Complainant’s health. Thus, the Complainant’s argument regarding medical certificates used by customers in billing disputes to avoid service shut-off is irrelevant to the issues in this case.

Based on the foregoing discussion and analysis, we shall deny the Complainant’s Exception No. 8.

### Whether “Reasonable” Service under Section 1501 Requires PECO to Make an Exception to the Installation and Use of a Smart Meter at the Complainant’s Residence

#### Positions of the Parties

The Complainant asserts that Dr. Marino explained in his testimony that there is a reliable scientific basis to conclude that RF exposure can cause harm to the Complainant but at present it would cost many tens of thousands of dollars to set up the experiment to test the theory on the Complainant. Randall M.B. at 75 (citing September 15, 2016 Hearing Transcript at 643-44). The Complainant argues that in the absence of a consensus diagnosis, the Commission should defer to the judgment and recommendation of the Complainant’s treating physician. The Complainant consulted with her treating physician who recommended that she avoid RF exposure. Randall M.B. at 75 (citing Direct Testimony of Dr. Ann Honebrink, September 27, 2016 Tr. at 16). The Complainant argues that it does not matter whether the treating physician had read up on RF exposure or was plainly exercising common sense clinical judgment – according to the Complainant, the Commission has no authority or special competence (under Section 1501 of the Code or otherwise) to second-guess the medical judgment of a treating physician. Randall M.B. at 76. Ms. Randall is concerned about chronic RF exposure based on her medical history. Randall M.B. at 32. Given the state of the scientific record, it would be cruel to subject the Complainant[s] to RF exposure from an AMI meter absent some compelling justification. Randall M.B. at 77. According to the Complainant, there is no compelling justification under Act 129. Randall M.B. at 79. Conceding that the General Assembly may have approved the concept of a smart meter roll out that would encompass all customers with no generalized opt out, the Complainant argues that the General Assembly did not indicate its intent to force exposure on persons like the Complainant. Randall M.B. at 79. The Complainant argues that Act 129 and Section 1501 of the Code are completely consistent and authorize, if not require, PECO to accommodate customers with legitimate concerns based on their physician’s medical recommendation. Randall M.B. at 80.

In response, PECO asserts that it offers its customers, including the Complainant, reasonable alternatives regarding AMI meter installation. PECO M.B. at 50. As to installation of the smart meter in a different location, PECO’s witness Mr. Pritchard testified that under PECO’s Tariff, Rules 3.2 and 3.4, the customer has the option of relocating the meter to a different location because the customer has the right under the tariff to choose the location of the meter board and socket (while PECO chooses the type of meter). If the customer would like a different location for the AMI meter, they can hire an electrician at the customer’s cost to move the meter board/socket to a new location on their property. To the extent such relocation would require work on the PECO system to extend its conductors to the new meter board location, PECO’s tariff Rule 6.2 requires the customer to be responsible for the costs of the changes to the PECO system. But those changes are all within the control of the customer and, once they are made, PECO would install the AMI meter at the new, customer-chosen location. PECO M.B. at 50-51 (citing Murphy Rebuttal Testimony of Glenn Pritchard at 10; PECO Exh. GP-3). PECO notes that this option remains open, and, if the Complainant wises to explore this option, PECO will work with them to relocate their meter. PECO M.B. at 51.

#### ALJ’s Initial Decision

In her Initial Decision, the ALJ recognized that the Commission has previously determined that there is no general “opt-out” right of smart meter installation for electric utility customers. Randall I.D. at 15 (citing *January 2013 Povacz Orde*r).

#### Complainant’s Exception No. 6 and PECO’s Reply

In her sixth Exception, the Complainant states that the ALJ erred in concluding that PECO acted reasonably in accordance with the Act 129 Installation Plan approved by the Commission. Randall Exc. at 25 (citing Murphy I.D. at 31-32). The Complainant explains that nowhere in Act 129, the Orders of the Commission, or PECO’s tariff is there any requirement that every single customer, including medically vulnerable customers, must accept an RF-emitting smart meter. According to the Complainant, the General Assembly in Act 129 may have approved the concept of a smart meter rollout that would encompass all customers, with no generalized opt-out, but nothing suggests that the General Assembly intended to permit utilities to force customers to accept exposure where they object on a doctor’s recommendation, as is the case here. The Complainant explains that there is nothing in the law that mandates this result, and that Section 1501 also prohibits it. Randall Exc. at 25-26.

PECO asserts that the Complainant’s sixth Exception is an “opt-out” argument. PECO provides that the Commission’s most recent order on an opt-out claim is *Frompovich v. PECO*, C-2017-2474602 (Opinion and Order entered May 3, 2018) (*Frompovich)*. According to PECO, the *Frompovich* decision states that the General Assembly intended for every single customer to accept a smart meter, even if they object based on health concerns. PECO R. Exc. at 20-21.

#### Disposition

As the ALJ correctly concluded, we have previously determined that that Act 129 does not allow an EDC customer to “opt out” of smart meter installation generally. Randall I.D. at 15 (citing *January 2013 Povacz Order)*. However, we also previously concluded, as discussed above, that it is our duty under Section 1501 of the Code, 66 Pa. C.S. § 1501, to hear and adjudicate individual formal complaints raising physical or health safety issues regarding a utility’s smart meter installation and use. *Kreider*. Here, the Complainant alleged in her Complaint that she is a medically vulnerable customer of PECO’s due to her medical history and that the RF exposure from a PECO smart meter that PECO proposes to install at the Complainant’s residence and use to measure her usage will adversely affect her health. Based on our review of the record, as discussed extensively above, we have concluded that the Complainant did not meet her burden of proof in demonstrating that she is in fact medically vulnerable as to RF exposure or that RF exposure from a PECO AMI meter will adversely affect her health. Therefore, the Complainant has failed to demonstrate that the RF exposure from a PECO smart meter is unsafe.

The Complainant essentially argues it would be absurd for the Commission to allow PECO to install and use an AMI meter on the Complainant’s property given her medical needs as testified to by the Complainant and her treating physician; that the General Assembly did not intend an absurd result; and that Section 1501 requires PECO to accommodate the medical needs of this customer by not installing only an analog metering device on her property. However, we reiterate that the Complainant has failed to demonstrate that the RF exposure from a PECO smart meter is unsafe. Accordingly, her request to not receive an AMI meter as part of receiving electric service from PECO is essentially the same as any other opt-out request based on customer preference. As we previously indicated in the *January 2013 Povacz Order*, Section 2807(f)(2) of the Code, *supra*, is controlling here, and the use of the word “shall” in the statute indicates the General Assembly’s direction that all customers will receive a smart meter. If the General Assembly intended for EDCs to invest in and maintain two separate sets of meter systems based on customer preference – an analog system separate from an AMI system – as part of furnishing “adequate, efficient, safe, and reasonable service and facilities”[[33]](#footnote-33) at “just and reasonable”[[34]](#footnote-34) rates charged customers, it would have plainly stated as much in Act 129, but it did not.

Based on the foregoing discussion and analysis, we shall deny the Complainant’s sixth Exception.

### 4. Whether the Complainant’s Substantive Due Process Rights Will Be Violated by an Order Finding for PECO

#### Positions of the Parties

The Complainant argues that should the Commission rule in favor of PECO in this proceeding and thus force the Complainant to accept the exposure of RF fields against her wishes and against the recommendation of her physician, there would be an obvious violation of the Complainant’s due process clause of the 14th Amendment of the United States Constitution as well as the due process protections in Article 1, Section 11 of the Pennsylvania State Constitution. The Complainant argues that this is evident from the discussion of broccoli in the legal debate about the Affordable Care Act that culminated in *National Federation of Independent Businesses v. Sebelius*, 567 U.S. 519, 660 (2012). During the argument in that case, Justice Scalia asked whether Congress could require citizens to buy broccoli. While the issue in that case was determining the extent of Congress’ power under Article I, commentators noted that requiring a consumer to buy broccoli would violate fundamental notions of due process, and forcing a consumer to eat broccoli (not just purchase it) would certainly violate due process. Randall M.B. at 73-74 (citing Michael C. Dorf, *Commerce, Death Panels, and Broccoli: Or Why the Activity/Inactivity Distinction in the Health Care Case was Really About the Right to Bodily Integrity*, 29 Ga. St. U.L. Rev. 897, 917 (2013)).

The Complainant argues that PECO is attempting to do just that – instead of asking its customers for permissions to expose them to RF emissions (purchasing broccoli with option to eat), it is forcing RF exposure on them without consent (force feeding broccoli). The Complainant argues that this raises serious constitutional issues. Randall M.B. at 74 (citing *Phillips v. County of Allegheny*, 515 F. 3d 224, 235 (3d Cir. 2008) (“[I]ndividuals have a constitutional liberty interest in personal bodily integrity that is protected by the Due Process Clause of the Fourteenth Amendment.”; *In re Cincinnati Radiation Litig*., 874 F. Supp. 796, 810-11 (S.D. Oh. 1995) (“The right to be free of state-sponsored invasion of a person’s bodily integrity is protected by the Fourteenth Amendment guarantee of due process.”)). The Complainant submits that any Commission interpretation of statutes or regulations that would infringe constitutionally protected rights for the Complainant should be avoided. Randall M.B. at 74.

In response, PECO argues that the Complainant’s substantive due process argument fails when viewed against the correct standard and burden in this proceeding and given Dr. Marino’s testimony that “there is no evidence that would warrant the statement” that PECO’s AMI meters will harm the Complainants. See PECO M.B. at 27, n.12.

#### ALJ’s Initial Decision

The ALJ concluded that there is no violation of the Complainant’s due process rights here. Randall I.D. at 13. The ALJ explained that Act 129 directed EDCs to file smart meter technology procurement and installation plans with the Commission for approval and the Act requires any smart meter technology to have bidirectional or two-way communication technology. Randall I.D. at 14 (citing 66 Pa.C.S. § 2807(g)). The ALJ noted that the Commission approved the smart meter installation plan developed by PECO and PECO is replacing AMR meters with AMI or “smart meters” in accordance with that approved plan. The ALJ provided that the Commission concluded that there is no provision in the Code of the Commission’s Regulations or Orders that allows a PECO customer to “opt out” of smart meter installation. Randall I.D. at 15 (citing *January 2013 Povacz Order*). The ALJ concluded that by seeking to install a smart meter at the service address, PECO was and is attempting to comply with Act 129, the orders of the Commission and its tariff. Randall I.D. at 15.

The ALJ stated that the due process requirements of the Pennsylvania Constitution and the 14th Amendment to the Federal Constitution are indistinguishable. According to the ALJ, the U.S. Constitution requires that the Commission provide due process to the parties appearing before them and this requirement is met when the parties are afforded notice and the opportunity to appear and be heard. Randall I.D. at 13 (citing *Caba v. Weaknecht*, 64 A.3d 39 (2013), citing *Turk v. Dep’t of Transp.*, 983 A.2d 805, 818 (Pa. Cmwlth. 2009); *Schneider v. Pa. Pub. Util. Comm’n*., 479 A.2d 10 (Pa. Cmwlth. 1984)). The ALJ opined that a review of the history in this matter shows that the Complainant has had the opportunity to be heard during several weeks of administrative procedures and hearings spread over many months. The ALJ stated that opportunity continued with briefs submitted on Complainant’s behalf and the instant review. Randall I.D. at 13. Regarding the substantive matter, the ALJ, after reviewing the testimony from the experts and the testimony of the Complainant herself, concluded that the Complainant did not meet her burden of proving that the installation of a smart meter would adversely affect her health or otherwise constitute unreasonable or unsafe service. Randall I.D. at 23.

#### Complainant’s Exception No. 7 and PECO’s Reply

In the seventh Exception, the Complainant states that the ALJ erred in concluding that mandated exposure to RF-emitting smart meters would not violate due process. The Complainant avers that the ALJ erroneously concluded that because the Complainant had an opportunity to be heard in these proceedings, there is no due process violation. Randall Exc. at 26 (citing Randall I.D. at 13). According to the Complainant, the ALJ confused the Complainant’s argument, which is a substantive due process claim, with a procedural due process claim. The Complainant explains that her argument is that forced RF exposure violates basic principles of respect for bodily integrity and cannot be justified here, regardless of the procedure provided. Randall Exc. at 26-27.

In its Replies to the Complainant’s seventh Exception, PECO provides that the Complainants are correct that the Initial Decision discussed the due process argument as a procedural, rather than a substantive, due process argument. PECO notes that if that is error, it is harmless, because elsewhere the Initial Decision made the determination that the Complainants did not meet their burden of proving the EFs from PECO’s AMI meters would harm them. According to PECO, the Initial Decision thus correctly concluded that the factual predicate of the substantive due process argument -- “harm to bodily integrity” -- was not proven. PECO provides that the substantive due process argument should thus be dismissed because, quite simply, the Complainants did not prove (and in fact admit that they did not prove) that they would be harmed by PECO’s AMI meters. PECO R. Exc. at 22-23.

#### Disposition

Clearly, the ALJ understood the Complainant’s due process claim was more than a procedural question. Perhaps out of an abundance of caution, the ALJ discussed the procedural question first followed by her substantive disposition of the claims before her. In the Initial Decision, the ALJ made the determination that the Complainant did not meet her burden of proving the RF exposure from PECO’s AMI meter would harm her health. Likewise, we determine above that the Complainant failed to demonstrate by a preponderance of the evidence that RF exposure from a PECO smart meter will cause or contribute to adverse health effects to the Complainant. In failing to meet the standard or burden in this proceeding, the Complainant has not shown that “forced RF exposure” from a PECO AMI meter violates “basic principles of respect for bodily integrity” or her substantive due process rights under the Pennsylvania or Federal Constitutions.

Based on the foregoing discussion and analysis, we shall deny the Complainant’s Exception No. 7.

# Conclusion

In light of the above discussion, we shall: (1) deny the Complainant’s Exceptions; (2) modify, in part, the ALJ’s Initial Decision; and (3) dismiss the Complaint, the Complaint, consistent with this Opinion and Order; **THEREFORE,**

**IT IS ORDERED:**

1. That the Exceptions filed by Cynthia Randall and Paul Albrecht on May 14, 2018, to the Initial Decision of Administrative Law Judge Darlene D. Heep issued on March 20, 2018, at Docket No. C-2016-2537666, are denied, consistent with this Opinion and Order.

2. That the Initial Decision of Administrative Law Judge Darlene D. Heep, issued on March 20, 2018, at Docket No. C-2016-2537666, is modified, in part, consistent with this Opinion and Order.

3. That the Formal Complaint filed by Cynthia Randall and Paul Albrecht, on April 1, 2016, at Docket No. C-2016-2537666, is dismissed.

4. That this proceeding is marked closed.

**BY THE COMMISSION,**

Rosemary Chiavetta

Secretary

(SEAL)

ORDER ADOPTED: May 9, 2019

ORDER ENTERED: May 9, 2019

1. We will follow the format used by Cynthia Randall and Paul Albrecht in their Exceptions. Cynthia Randall is referred to as Ms. Randall rather than Dr. Randall. The Exceptions focus on Ms. Randall as the Complainant and states that “it is unnecessary to address Mr. Albrecht’s factual circumstances.” Randall Exc. at 1, n.1. [↑](#footnote-ref-1)
2. As the ALJ noted in the Randall Initial Decision, the expert witnesses in this proceeding used the terms “electromagnetic fields” or “EMFs” and RF fields interchangeably to address the emissions or exposure levels concerns of the Complainant in their testimonies. Randall I.D. at 1, n.3. The ALJ used the abbreviation “EF” to refer to these emissions. *Id*. We do not use herein the “EF” abbreviation utilized by the ALJ in the Randall Initial Decision. For disposition purposes herein, we will refer to the emissions of concern as RF emissions or RF field exposure. [↑](#footnote-ref-2)
3. The Joint Motion combined the schedules for the following proceedings: *Maria* *Povacz v. PECO Energy Company*, Docket No. C-2015-2475023; *Laura Sunstein* *Murphy v. PECO Energy Company*, Docket No. C-2015-2475726; *Cynthia* *Randall and Paul Albrecht v. PECO Energy Company*, Docket No. C-2016-2537666; and *Stephen and Diane* *Van Schoyk v. PECO Energy Company*, Docket No. C-2015-2478239. On October 25, 2016, the Complainants Stephen and Diane Van Schoyck filed an unopposed Petition to Withdraw, stating that they were removing their home from the electric grid, and therefore the Van Schoycks did not participate in the Omnibus hearings. Thus, the Omnibus Complainants that participated in the hearings are Ms. Povacz, Ms. Murphy, Ms. Randall and Mr. Albrecht. [↑](#footnote-ref-3)
4. Briefing outlines, testimony and exhibits are contained in an eighteen volume Joint Appendix for the Omnibus cases agreed to by the parties and filed in *Murphy v. PECO Energy Company* at Docket No. C-2015-2475726. [↑](#footnote-ref-4)
5. On March 23, 2018, the Complainant’s counsel filed a Petition for Additional Time to File Exceptions due to personal and professional commitments. The request was granted by Secretarial Letter dated March 26, 2018. On April 19, 2018, Complainant’s counsel filed a second request for a two-week extension, indicating of the untimely passing of a member of counsel’s law firm and advising that opposing counsel for PECO did not object to a ten-day extension. By Secretarial Letter dated April 17, 2018, the deadline to file Exceptions was extended until May 14, 2018, with Replies due twenty days thereafter. [↑](#footnote-ref-5)
6. In formal complaint proceedings, the Commission, not the ALJ, is the ultimate fact-finder; it weighs the evidence and resolves conflicts in testimony. When reviewing the initial decision of an ALJ, the Commission has all the powers that it would have had in making the initial decision except as to any limits that it may impose by notice or by rule. *Milkie*, 768 A.2d at 1220, n. 7 (citing, *inter alia*, 66 Pa. C.S. § 335(a)). [↑](#footnote-ref-6)
7. *See Final Rulemaking Order, Rulemaking Re: Electric Safety Regulations, 52 Pa. Code Chapter 57*, Docket No. L-2015-2500632 (Order entered April 20, 2017) (*Electric Safety Final Rulemaking Order*). [↑](#footnote-ref-7)
8. The Complainant’s Exceptions include an “Introduction” section, which contains arguments not found elsewhere in the numbered Exceptions including: (1) a citation to *Murray v. Motorola*; (2) an argument that the Commission should refrain from deciding this case; and (3) a request for notice and comment rulemaking. PECO R. Exc. at 1. Pursuant to our Regulations, each exception must be numbered and identify the finding of fact or conclusion of law to which exception is taken and cite relevant pages of the decision. 52 Pa. Code § 5.533(b). Because the arguments contained in the Introduction section are non-conforming to the requirements of 52 Pa. Code § 5.533(b), we will not dispose of those arguments appearing in the Complainant’s Introduction to Exceptions that do not appear elsewhere in her numbered Exceptions. [↑](#footnote-ref-8)
9. The Complainant cites to the definitions contained in the Merriam-Webster dictionary of “safe” as “free from harm or risk” and “harm” as defined as “physical or mental damage” and “risk” as “possibility of loss or injury.” Randall R.B. at 7 (citations omitted). The Complainant also provides numerous other definitions of these and similar terms. *See* Randall R.B. at 7, n.2. [↑](#footnote-ref-9)
10. Even though the Complainant describes in her Reply Brief, pp. 6-7, that the Commission’s statutory interpretation of the word “safe” in Section 1501 is a “threshold issue,” it does not mention this argument in its Main Brief or its Exceptions. We note that PECO did take the opportunity to respond to the Complainant’s statutory construction argument in its Reply Brief at pages 18-19, submitting that “since the Commission has a well-developed body of law regarding burden of proof that is specific to this kind of medical/scientific controversy, it would not be appropriate to supplant that precedent with the Merriam-Webster dictionary.” PECO R.B. at 19. [↑](#footnote-ref-10)
11. The Complainant cites to three cases to emphasize its point through contrast. Randall R.B. at 10 (citing *e.g. Brandon v. Ryder Truck Rental, Inc*., 34 A. 3d 104, 110 (Pa. Super. Ct. 2011), *Viguers v. Phillip Morris USA, Inc*., 837 A.2d 534, 540 (Pa. Super. Ct. 2003), *Spino v. John S. Tilley Ladder Co*., 696 A. 2d 1169, 1172 (Pa. 1997). The Complainant quotes these opinions, which indicate that proving causation is a required element of the cause of action under the applicable law. [↑](#footnote-ref-11)
12. The preponderance of evidence standard is explained in the “Legal Standards” section of this Order and will not be repeated. [↑](#footnote-ref-12)
13. In *Kreider*, PECO’s petition for reconsideration came before us after we had already denied PECO’s preliminary objections requesting that we dismiss the complaint as legally insufficient as a matter of law. The main issue before us on reconsideration was whether anything in Act 129, the Commission’s Regulations or Commission’s Orders prohibited us from holding a hearing when a customer raises safety allegations under § 1501 of the Code concerning smart meter use and installation. We concluded in the negative and denied PECO’s petition. Moreover, we stated that to ignore claims relating to the safety of smart meters would be an abdication of our duties and responsibilities under Section 1501 of the Code. *Kreider*, slip op., at 20. [↑](#footnote-ref-13)
14. The Complainant filed this case as a formal complaint proceeding and included the prayer for relief that the Commission stop PECO from terminating her service and direct PECO to allow the Complainant to use an analog meter at her residence and not an AMI smart meter. The record demonstrates that the Complainant is a customer of PECO’s, that PECO sent written notice to the Complainant of its plans to install an AMI meter at her residence and that PECO sent written notice of its plan to terminate service to her residence as a result of the Complainant’s refusal to allow PECO access to her property to install the AMI meter. After the Complaint was filed by Ms. Randall, PECO ceased its termination efforts as required by our Regulations, at 52 Pa. Code § 56.92, and continued to stay its efforts to install the proposed AMI meter at the Complainant’s residence, keeping its existing AMR meter in place. The Parties have fully litigated this case as a formal complaint proceeding and at no point in this proceeding has PECO argued that the Complainant’s claims are not ripe or otherwise appropriate for a Commission decision under Section 1501 or 1505 based on the procedural vehicle of the case (*i.e*., this being a formal complaint as opposed to a petition for relief) or the fact that PECO has not yet installed or begun using the AMI meter at her residence. [↑](#footnote-ref-14)
15. The Complainants Maria Povacz and Laura Sunstein Murphy also presented the testimony of Martin Pall, Ph.D.; however, the Complainant decided to forego discussion of the testimony of Dr. Pall in its Briefs and therefore PECO followed suit. Randall M.B. at 23, n. 1; PECO M.B. at 5. According to the Parties, Dr. Pall testified primarily regarding the mechanism for harm from EF exposure and that his testimony is not relevant to the burden of proof here. Accordingly, Dr. Pall’s testimony is not discussed in the Randall Initial Decision or this Order. [↑](#footnote-ref-15)
16. By referring to individuals who are “bonded to industry,” Dr. Marino testified that he means “they were consultants to industry or had some financial relationship or at a minimum an undisclosed conflict of interest with regard to industry. That was summed up in the term bonded.” September 16, 2016 Transcript at 835. [↑](#footnote-ref-16)
17. The Parties each explain that, in scientific research, a “positive” study is short for a study in which the investigator finds that exposure to an agent of interest results in a change in a measured endpoint, while a “negative” study refers to a scientific study in which the investigator finds that exposure does not result in change to a measured endpoint. PECO M.B. at 32; Randall M.B. at 47. [↑](#footnote-ref-17)
18. The Murphy Rebuttal Testimony of Dr. Christopher Davis and the Murphy Rebuttal Testimony of Dr. Mark Israel were entered into the record for Randall and Albrecht at the December 8, 2016 Hearing along with revised exhibits PECO Exhs. CD1-7. December 8, 2016 Hearing Tr. at 1466, 1476. The Povacz Rebuttal Testimony of Glenn Pritchard was entered into the Randall record at the December 6, 2016 Hearing along with PECO Exh. GP-11. December 6, 2016 Hearing Tr. at 1004. [↑](#footnote-ref-18)
19. To calculate RF exposures associated with an AMI meter that PECO proposes to install and use at Ms. Randall’s residence, Dr. Davis relied upon the data and other technical information that PECO witness Glenn Pritchard provided. Mr. Pritchard testified that in Ms. Randall’s neighborhood, the existing meters have been tuned to six or seven transmissions per day for a 70-millisecond duration at a maximum of two watts of power. The AMI meters also include a ZigBee radio that allows the meter to communicate with devices within the home. When first installed, the ZigBee radio will transmit every thirty seconds at approximately 1/10th of a watt for a duration of less than one microsecond. PECO Energy Company St. 2R at 5-6, December 6, 2016 Tr. at 942, 1004. [↑](#footnote-ref-19)
20. In her Reply Brief, the Complainant states:

    The Complainants and their doctors are not experts in the effects of RF exposure (although Dr. Marino is) and they concede, as they must, that their testimony and that of their doctors would not meet the high burden of proving causation if these proceedings required…proof of specific causation of harm.

    Randall R.B. at 18. [↑](#footnote-ref-20)
21. “An otherwise qualified non-medical expert may give a medical opinion so long as the expert witness has sufficient specialized knowledge to aid the [trier of fact] in its factual quest.” *McClain ex rel. Thomas v. Welker*, 761 A.2d 155, 157 (Pa. Super. 2000) (citing *Miller v. Brass Rail Tavern*, 541 Pa. 474, 664 A.2d 525 (1995) (holding coroner with years of experience had specialized knowledge regarding time of death and qualified as expert to testify regarding same)). [↑](#footnote-ref-21)
22. In addition to the description of Dr. Davis’ qualifications as presented in PECO’s Brief and the Randall Initial Decision, we further note that Dr. Davis has education, training and experience in physics, biophysics, chemistry, electrical engineering, electromagnetics, bioelectromagnetics, and radio frequency bioelectromagnetics and dosimetry (defined as “the measurement and calculation of the level of electromagnetic fields produced from a source”). Murphy Rebuttal Testimony of Dr. Christopher Davisat 11. Murphy Rebuttal Testimony of Dr. Christopher Davis at 24. Dr. Davis explained that he conducted a wide variety of scientific studies in the fields of physics, biophysics, and electrical engineering, and particularly studies on electromagnetics, bioelectromagnetics, and RF electromagnetics and dosimetry. *Id.* at 4‑5. Related to the topic of RF, Dr. Davis authored scientific publications including two book chapters on radio frequency fields, twenty-four articles published in peer-reviewed scientific journals on RF fields and presented fifty-five papers at scientific conferences on RF fields. *Id.* at 5. Dr. Davis explained that he has conducted research on RF fields of the type periodically produced by PECO’s AMI meters. Dr. Davis stated that he has served as a consultant and provided expert advice on both power frequency and RF fields, including 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. *Id.* at 7. [↑](#footnote-ref-22)
23. Pa. R.E. 702 permits an expert witness to testify “in the form of an opinion or otherwise . . ..” The Comment to Pa. R.E. 702 provides: “Much of the literature assumes that experts testify only in the form of an opinion. The language ‘or otherwise’ reflects the fact that experts frequently are called upon to educate the trier of fact about the scientific or technical principles relevant to the case.” [↑](#footnote-ref-23)
24. We note that the ALJ overruled the Complainant’s request at the hearing to admit Dr. Davis’ Exhibits CD-2 through CD-8 into the record purely as demonstrative exhibits, stating that such exhibits “will be admitted as calculations made by the expert, and given the weight according how we weigh the testimony in general.” *See* December 8, 2016 Hearing Transcript at 1462-63, 1465-67. [↑](#footnote-ref-24)
25. In addition to the description of Dr. Israel’s qualifications as presented in PECO’s Brief and the Randall Initial Decision, Dr. Israel provided that he has been conducting medical research for 40 years on topics including systems biology, biochemistry, cell biology, cancer, molecular biology and molecular genetics and has published over 200 papers reporting on his research in medical or scientific journals. Dr. Israel stated that after completing his residency, he pursued medical research at the National institutes of Health, and then the Pediatric Branch of the National Cancer Institute. Dr. Israel noted his interest in RF fields and health began with parents of his patients concerned with exposure to these fields from power lines and cell phones. Dr. Israel stated he began examining the research to inform those parents of patients and has been following the research on those topics for more than 25 years. Dr. Israel noted that he has been teaching for more than 25 years in a number of fields including endocrinology, immunology, hematology, neurology, cardiology, biochemistry, cell biology, genetics, molecular genetics, medical oncology, and radiation oncology. Murphy Rebuttal Testimony of Dr. Mark Israel at 3-6. [↑](#footnote-ref-25)
26. Pa. R.E. 705 states “If an expert states an opinion the expert must state the facts or data on which the opinion is based.” [↑](#footnote-ref-26)
27. *See* *Walker v. Unemployment Compensation Board of Review*, 367 A. 2d 366, 370 (Pa. Cmwlth. 1976) (*Walker*) (citations omitted); *see also Chapman v. Unemployment Compensation Board of Review*, 20 A. 3d 603, n.8 (Pa. Cmwlth. 2011) (*Chapman*) (simple hearsay evidence may support an agency’s finding of fact so long as the hearsay is admitted into the record without objection and is corroborated by competent evidence in the record). [↑](#footnote-ref-27)
28. Pa. R.E. 703 provides:

    An expert may base an opinion on facts or data in the case that the expert has been made aware of or personally observed. If experts in the particular field would reasonably rely on those kinds of facts or data in forming an opinion on the subject, they need not be admissible for the opinion to be admitted. [↑](#footnote-ref-28)
29. Another permitted purpose of limited evidentiary treatment of an underlying study, report or research is to permit parties to establish that the expert’s methodology is, or is not, “generally accepted in the relevant field” in accordance with Pa. R.E. 702. The Comment to Pa. R.E. 702(c) provides as follows:

    Pa.R.E. 702(c) differs from F.R.E. 702 in that it reflects Pennsylvania's adoption of the standard in *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923). The rule applies the “general acceptance” test for the admissibility of scientific, technical, or other specialized knowledge testimony. This is consistent with prior Pennsylvania law. *See Grady v. Frito-Lay, Inc.*, 576 Pa. 546, 839 A.2d 1038 (2003). The rule rejects the federal test derived from *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

    Pa. R.E. 702 is applicable to administrative agency proceedings. *Gibson v. WCAB*, 580 Pa. 470, 485-86, 861 A.2d 939, 947 (Pa. 2004) (*Gibson*) (holding, in part, that notwithstanding the statutory maxim of 2 Pa. C.S. § 505, which mandates a relaxation of the strict rules of evidence in agency hearings and proceedings, the “evidentiary Rules 602, 701, and 702 are applicable to agency proceedings in general . . .”). [↑](#footnote-ref-29)
30. September 15, 2016 Hearing Transcript at 578. [↑](#footnote-ref-30)
31. *See Ramos v. Pennsylvania Board of Probation and Parole*, 954 A.2d 107, 110 (Pa. Cmwlth. Ct. 2008) (quoting *Falasco v. Pennsylvania Board of Probation and Parole*, 521 A.2d 991, 995, n.6 (Pa. Cmwlth. Ct. 1987) (““Official notice” is the administrative counterpart of judicial notice and is the most significant exception to the exclusiveness of the record principle, allowing an agency to take official notice of facts which are obvious and notorious to an expert in the agency’s field and those facts contained in reports and records in the agency’s files, in addition to those facts which are obvious and notorious to the average person; thus, official notice is a broader doctrine than is judicial notice and recognizes the special competence of the administrative agency in its particular field and also recognizes that the agency is a storehouse of information on that field consisting of reports, case files, statistics and other data relevant to its work.”). [↑](#footnote-ref-31)
32. *See*, *supra*, n.19. [↑](#footnote-ref-32)
33. *See*, *supra*, 66 Pa. C.S. § 1501. [↑](#footnote-ref-33)
34. *See* 66 Pa. C.S. § 1301, which provides “Every rate made, demand, or received by any public utility…shall be just and reasonable and in conformity with regulations or orders of the [C]ommission.” [↑](#footnote-ref-34)