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December 7, 2018

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

Re: Alexia and Lawrence McKnight v. PECO Energy Company
Docket No. C-2017-2621057

Dear Secretary Chiavetta:

The *Reply Exceptions of PECO Energy Company* in the above-referenced proceeding are attached for filing.

If you have any questions about this filing, please call me at 215.841.6863.

Very truly yours,



Ward L. Smith
Counsel for PECO Energy Company

WS/adz
Enclosures

c: Honorable Darlene D. Heep, ALJ
Certificate of Service

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION


Alexia and Lawrence McKnight :
 :
 v. : Docket No. C-2017-2621057
 :
 PECO Energy Company :

CERTIFICATE OF SERVICE

I, Ward L. Smith hereby certify that I served a copy of PECO Energy Company's **Reply Exceptions** in the above matter, upon all interested parties via email and overnight delivery to:

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Dated: December 7, 2018


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**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Alexia and Lawrence McKnight

v.

PECO Energy Company

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C-2017-2621057

Reply Exceptions of PECO Energy Company

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Reply Exceptions of PECO Energy Company

By Secretarial Letter dated October 24, 2018, the Commission issued the Initial Decision (“I.D.”) of Administrative Law Judge (“ALJ”) Darlene Heep in this matter. By subsequent Secretarial Letter dated November 6, 2018, the Commission established filing dates of November 27, 2018 for exceptions and December 7, 2018 for reply exceptions.

Both PECO and the McKnights filed exceptions on November 27, 2018. Pursuant to the Secretarial Letters and the provisions of 52 Pa. Code §5.535, PECO hereby files its Reply Exceptions to the McKnights’ Exceptions.

Before addressing substantive issues, PECO notes that, in their Exceptions (p. 4, fn. 1), the McKnights describe how they would like to be addressed henceforth in case filings and Commission documents in this proceeding. They state that:

Throughout her decision, the ALJ refers to Dr. Alexia McKnight as Mrs. McKnight, belittling the fact that she holds professional degrees. Since both complainants are doctors sharing the same last name, we refer to “Mrs.” McKnight as Dr. A. McKnight, and her husband as Dr. L. McKnight.

In these Reply Exceptions, PECO adopts the naming convention requested by the McKnights. In its Main Brief and Reply Brief, however, PECO used the convention of referring to “Mr.” and “Mrs.” McKnight *because that nomenclature was agreed upon by the parties at the hearing, just prior to the opening of the record,*¹ and was followed by the parties, the ALJ, and the court reporter throughout the four-day hearing. PECO followed this naming convention in its

¹ See PECO Main Brief, p. 4, fn 2: “Both Mr. and Mrs. McKnight are doctors (of, respectively, medicine and veterinary medicine) and each normally would be referred to as ‘Dr. McKnight.’ At the hearing, the parties agreed that, in order to distinguish between their testimonies, they would be referred to as “Mr. McKnight” and “Mrs. McKnight.” PECO follows that convention in its Brief.”

briefs. The McKnights followed a similar naming convention in their Main Brief² and Reply Brief.³

When PECO used the agreed-upon convention of referring to Dr. A. McKnight as “Mrs. McKnight,” it meant no disrespect to Dr. A. McKnight.⁴ Similarly, the McKnights’ assertion that ALJ Heep’s use of “Mrs. McKnight” was intended to belittle Dr. A. McKnight is completely meritless and unfair. The record shows that ALJ Heep always treated Dr. A. McKnight and Dr. L. McKnight with respect and courtesy. PECO doesn’t always agree with ALJ Heep’s rulings (as demonstrated by the fact that PECO filed Exceptions in this case and the *Povcaz* case), but her judicial demeanor is beyond reproach.

I. Reply to Exception 1 (pp. 10-14) – Inconsistency between Conclusions 8 and 9

In the McKnights’ Exception 1 (pp. 10-14), they claim that there is a logical inconsistency between Conclusions of Law 8 and 9.

In material part, Conclusion of Law 8 states:

There is sufficient evidence to support a finding that Mrs. McKnight will be adversely affected by the reinstallation of the Landis + Gyr meter #127832547 and that reinstallation [of that meter] would constitute unsafe or unreasonable service in violation of 66 Pa. C.S. §1501. . .

² In their Main Brief, the McKnights did not once refer to Dr. A. McKnight as “Dr. A. McKnight.” They referred to her three times as “Dr. Alexia McKnight (pp. 3, 6, and 8) and over 200 times using only her first name “Alexia,” with an occasional reference to “Alexia McKnight.”

³ In their Reply Brief, the McKnights did not once refer to Dr. A. McKnight as “Dr. A. McKnight.” They referred to her five times as “Dr. Alexia McKnight (pp. 8, 23, 47 and 48 [2 times]), one time as “Alexia McKnight, D.V.M. (p. 3), and over 75 times using only her first name “Alexia.”

⁴ It should be noted that Dr. A. McKnight was offered only as a lay witness in this proceeding; she was not offered or recognized as an expert witness. Apr 10 Tr. 25-26. She did not testify regarding any scientific studies and did not offer expert opinions. Her degrees are thus not a material aspect of evaluating her testimony in this proceeding.

In material part, Conclusion of Law 9 states:

There is insufficient evidence to support the conclusion that Mrs. McKnight will be adversely affected by any smart meter or that PECO's use of any smart meter will constitute unsafe or unreasonable service in violation of 66 Pa. C.S. §1501. . . .

In PECO's Exceptions (Exception 1, pp. 3-11), PECO extensively demonstrated that there is no evidentiary support for Conclusion of Law 8, and in particular that there is no record evidence to support a finding that some other unknown, unidentified interaction exists between PECO's Landis + Gyr meter and the environment at the McKnight residence.

In the McKnights' Exception 1, they explicitly agree with PECO's assessment that there is no record evidence to support a non-EMF effect, stating (p. 12) (emphasis added): "If [the Landis + Gyr] meter . . . cause[d] adverse effects in Dr. A. McKnight, then *there is simply no evidence to support a belief that it occurred via any other mechanism than one involving EMF in an unusually sensitive individual.*"

All parties thus concur that there is no record evidence to support Conclusion of Law 8. The Commission thus *should not adopt* Conclusion of Law 8 in its Opinion and Order. That approach will eliminate the claimed "logical inconsistency" between Conclusion of Law 8 and Conclusion of Law 9, which will also resolve the McKnights' Exception 1.

II. Reply to Exception 2: Claims that the ALJ did not follow Commission law

a. Reply to Exception 2a (pp. 14-15): Shifting the burden of going forward

In their Exception 2a (pp. 14-16), the McKnights claim that the I.D. did not follow Commission law with respect to "shifting the burden of going forward." The McKnights state that they put on "extensive surrebutter⁵ to PECO's testimony" that attacks the qualifications of

⁵ PECO prefers the more commonly used "surrebuttal" and will use that term unless directly quoting the McKnights' Exceptions.

PECO's witnesses, and that the ALJ "makes no mention anywhere" of that surrebuttal evidence. In substance, the McKnights' argument in Exception 2a is that the I.D. erred in not accepting the McKnights' attacks on the qualifications of PECO's expert witnesses Dr. Christopher Davis and Dr. Mark Israel.

PECO has several responses.⁶

First, the I.D. is not required to address every argument that the parties make. *See, e.g., University of Pennsylvania v PAPUC*, 485 A. 2d 1217, 1222-23 (Pa. Cmwlth. 1984):

Finally, in this regard, we specifically reject the University's position that we may set aside the Commission's decision for failure of that administrative body to consider expressly and at length each contention and authority marshalled by a party to the proceeding. We have held and we here repeat that it has never been the law of this Commonwealth:

that an administrative agency must set forth findings specifically noting the rejection, and reasons for such rejection, of each and every minor allegation of a party. A voluminous record does not create, by its bulk alone, a multitude of real issues demanding individual attention....

Application of Midwestern Fidelity Corp., 26 Pa. Commonwealth Ct. 211, 230 n. 6, 363 A.2d 892, 902 n. 6 (1976).

Second, the record shows that Dr. Davis and Dr. Israel are eminently qualified.⁷ Dr. Davis is a Ph.D. physicist who is the Minta Martin Professor of Engineering and Professor of Electrical and Computer Engineering at the University of Maryland. Dr. Davis was recognized, in this case and prior Commission proceedings, as an expert in the fields of physics, biophysics,

⁶ As a preliminary matter, it should be noted that *the McKnights did not present any surrebuttal evidence*. The McKnights and their witnesses testified days before PECO's expert witnesses appeared and were not recalled to give responsive testimony. When the McKnights refer to "surrebutter," they are actually talking about their cross-examination of PECO's witnesses.

⁷ Dr. Davis's qualifications are provided in his *curriculum vitae*. PECO Exh. CD-1. *See also* Apr 13 Tr. 9-18; Findings of Fact 75-76. Dr. Israel's qualifications are provided in his *curriculum vitae*. PECO Exh. MI-1. *See also* Apr 13 Tr. 176-190; Findings of Fact 88-89.

chemistry, electrical engineering, electromagnetics, bioelectromagnetics, and dosimetry. Dr. Mark Israel is a medical doctor who, at the time of the hearing, was the Professor of Systems Biology and Pediatrics and Medicine at Dartmouth Medical School, and was and still is the Executive Director of the Israel Cancer Research Fund. Dr. Israel was recognized, in this case and prior Commission proceedings, as an expert in the fields of medicine, medical research, and radiofrequency and electromagnetic fields and health. Moreover, the ALJ heard the testimony of these witnesses in person and thus was able to evaluate their credibility, credentials, and demeanor. The ALJ is entitled to take into consideration those superior qualifications and her judgment of the witnesses' demeanor in rejecting the McKnights' attacks on PECO's witnesses.

Third, the examples given by the McKnights in Exception 2a are simply wrong.⁸

As to Dr. Davis, the McKnights claim (p. 15) that the I.D. "ignor[ed] his near complete lack of training in biology or understanding of relevant biologic concepts such as how cellular processes work."

The I.D. did not ignore this argument; it directly addressed and dismissed it. (p. 24):

The McKnights note that Dr. Davis does not have formal training in biology. (Tr. April 13 at 17:5-11). However, for the past 50 years, he has worked closely with biologists, M.D.s, engineers and physicians examining bioelectromagnetics (April 13, Tr.at 17).

In addition to the cited testimony, Dr. Davis responded to Dr. L. McKnight's questions about expertise in biology as follows:

Dr. L. McKnight: Is it fair to say, that the biologic aspects is or is not your field?

⁸ The McKnights state (p. 15) that their Main Brief "has extensive listing of the problems with the PECO key expert testimonies being on page 28 and extending through page 50." PECO provided its analysis of those claimed "problems" in its Main Brief, *passim*, and its Reply Brief, pp. 11-16. In the text of these Reply Exceptions, PECO will address only the specific examples given by the McKnights in their Exception 2a.

Dr. Christopher Davis: I don't have a degree in biology. . . .But *I've done a great number of experiments looking at the characteristics of cells, and tissue, electrical activity in heart tissues and things of that nature*, where I work very closely with biologists and M.D.s. *And I believe that I'm qualified to talk about a number of aspects of how radiofrequency radiation interacts at a cellular level as well as a whole body level.*

Apr 13 Tr.108 (emphasis added). (That exchange constitutes the McKnights' entire "surrebutter" evidence on this issue.)

The record evidence thus clearly demonstrates that Dr. Davis has substantial experience in biology and related scientific areas that qualifies him to provide expert testimony on "relevant biologic concepts such as how cellular processes work." Indeed, he was recognized as an expert in biophysics, chemistry, bioelectromagnetics, and dosimetry; each of those fields has a biological component and requires knowledge of biology. The I.D. did not "ignore" the McKnights' claim. To the contrary, the I.D. rejected that claim based on the record evidence.

As to Dr. Israel, the McKnights claim that his testimony should not be given weight because he has not treated patients with EHS or written papers on that condition, and because he did not examine Dr. A. McKnight. Again, the I.D. did not ignore this argument. The I.D. (p. 26) made it clear that, notwithstanding these criticisms, there is ample grounds to give weight to Dr. Israel's testimony:

For more than 30 years, Dr. Israel has evaluated scientific studies on power frequency, radiofrequency, related research and health. (April 13, Tr. 178-179). He has taught pediatrics, anatomy, endocrinology, immunology, hematology, neurology, neurosurgery, cardiology, biochemistry, cell biology, genetics, molecular genetics, medical oncology and radiation oncology. (April 13, Tr. 181).

In addition to the cited testimony, Dr. Israel described how he became involved in the study of EMF and health, and why he has followed the research in this field for decades:

Dr. Israel: . . . the way I got involved in this whole field. When I began - and the most common pediatric cancer is leukemia. And there was a time when there was a lot of concern about leukemia and power lines. And to make my patients become informed about that, I had to become informed myself. And so I familiarize myself with the

medical studies in that area. I talked to people who were experts in leukemia and in the causes of leukemia. And eventually became facile with what was known in that area. And I shared it with my patients. And when I moved to California, the focus of my practice and my interest shifted from pediatric oncology to brain tumors. And then I got involved in both adult and children, treating and studying brain tumor and brain tumor causation. And there has been concern that a whole bunch of environmental causes of brain tumors might be a problem. And so in that settling, I learned about the environmental causes of brain tumors as well. And I informed my patients about it when they asked. So their questions oftentimes went far beyond, did this cause my cancer. And so even in my daily practice, I had to inform myself about the broader spectrum of things. And that grew into a - just a lasting interest in this field.

Apr 13 Tr. 188-89.

Dr. Israel also testified that, in conducting his evaluation of the scientific research on EMF and EHS, he used the same six-step methodology that he uses in the usual course of his medical work to determine whether an exposure causes, contributes to, or exacerbates a reported medical condition or symptoms. Apr 13 Tr. 191, PECO Exh. MI-2. In PECO's Main Brief (p. 60) it described the extensive review of scientific research that Dr. Israel conducted using that methodology:

Dr. Israel reviewed the scientific research literature that examine the question of whether there is a relationship between exposure to radiofrequency fields or other frequencies of EMF and people who claim to have electromagnetic hypersensitivity, or EHS. . . . His review covered over 50 published studies, a subset of which he discussed in detail. Those studies show that IEI [Idiopathic Environmental Intolerance], EHS, and the variety of symptoms attributed to it are not caused by radiofrequency fields. Apr 13 Tr. 194-202; PECO Exh. MI-3.

The record evidence thus clearly demonstrates that Dr. Israel has substantial expertise in evaluating and reaching medical conclusions regarding claims that EMF is a cause of adverse health effects, including particularly EHS. The I.D. did not "ignore" the McKnights' claim. To the contrary, the I.D. rejected that claim based on the record evidence.

b. Reply to Exception 2b (pp. 15-16): Prior Commission rulings

The McKnights' Exception 2b (pp. 15-16) is entitled "The ALJ erred by not following prior Commission rulings." The McKnights argue that the I.D. did not follow the Commission's guidance in *Kreider v PECO*, P-2015-2495064 that the role of the ALJ is 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 use of a smart meter will constitute unsafe or unreasonable service."

The McKnights argue that the ALJ did not properly fulfill this role in the instant proceeding due to the claimed logical inconsistency between Conclusions of Law 8 and 9. The Commission can thus resolve Exception 2b by following PECO's recommendation, as set forth in its Reply to Exception 1, that the Commission should not adopt Conclusion of Law 8.⁹

III. Reply to Exception 3: "Basic testimony facts"

a. Reply to Exception 3a (p. 16): Removal of the Landis + Gyr meter

In Exception 3a (p. 16), the McKnights state that the I.D. erred in Finding of Fact 24, which states that "At some point in April or May of 2016 the AMI meter was reinstalled at the service address." The McKnights counter that on May 24, 2016 the Landis + Gyr AMI meter was removed from the McKnight residence, not reinstalled.

⁹ In both Exception 2b and Exception 1, the McKnights state that, in the I.D. in *Povacz v PECO*, C-2015-2475023, ALJ Heep made a finding that is similar to Conclusion of Law 8 in the instant proceeding. (In *Povacz*, ALJ Heep found that "some other aspect "of PECO's AMI meters, other than the claimed effect of EMF exposure, was contrary to Ms. Povacz's health.) On May 14, 2018, PECO filed extensive Exceptions in the *Povacz* case in which it demonstrated that there is no record evidence to support the "some other aspect" finding in *Povacz*. On June 4, 2018 Ms. Povacz filed Reply Exceptions in which she stated (p. 2) that: "Complainant agrees with PECO in so far as her evidence did not prove that some aspect of PECO's smart meters other than RF emissions from PECO's smart meters are capable of causing her harm."

PECO agrees that the Landis + Gyr meter was removed, not reinstalled, on May 24, 2016. However, the I.D. later corrected itself on this same point (p. 18) (emphasis added): “When *the AMI meter was removed on May 24, 2016*, Mrs. McKnight’s health improved.” Finding of Fact 24 should thus be viewed as a typo and corrected to say that on May 24, 2016 PECO’s AMI meter was removed (not reinstalled). But given the I.D.s later correct treatment of this issue, the typo is immaterial.

b. Reply to Exception 3b (p. 16): Dr. Rea’s disclosure statements

Dr. William Rea is a treating physician who diagnosed Dr. A. McKnight as having EHS. In its Main Brief (pp. 51-55), PECO demonstrated that there are many reasons not to give weight to Dr. Rea’s testimony: (1) the study protocol he used to diagnose Dr. A. McKnight is not scientifically reliable; (2) Dr. Rea did not test Dr. A. McKnight at the frequencies used by PECO’s AMI meters; (3) Dr. Rea signed a document implying that EHS is not recognized as a “true medical condition” by the international medical community; (4) Dr. Rea diagnosed Dr. A. McKnight as having many serious illnesses, but did not refer her to a specialist in treating those illnesses; and (5) Dr. Rea signed a Mediated Agreed Order with the Texas Medical Board (“TMB”) under which he is required to inform all patients who he treats that his treatment modalities are “not endorsed, sanctioned or supported by the Texas Medical Board.” Indeed, Dr. Rea required Dr. A. McKnight to sign such a disclosure before he treated her.

The I.D. (pp. 8, 25-27) agreed with PECO’s multiple arguments and gave little or no weight to Dr. Rea’s testimony. As to PECO’s fifth argument regarding the TMB, the I.D. stated (p. 8, Finding of Fact 43)¹⁰:

¹⁰ The McKnights’ Exceptions (p. 16) incorrectly refer to this as Finding of Fact 42.

To receive the treatments of Dr. Rea, Mrs. McKnight was required to sign disclosures stating that his treatments were “not endorsed, sanctioned, or supported by the Texas Medical Board.” (April 10, Tr. 40-42; Late-file Exhibit B).

On page 27, the I.D. further states that “PECO also presented evidence that two state medical boards questioned the EHS treatment of Dr. Rea.” The McKnights except to this latter finding, claiming without citation that “[t]he TMB never made such a statement.”

The triggering event that caused the TMB to sanction Dr. Rea, and which led to the Mediated Agreed Order, was his treatment of five known, unnamed patients. The complaint in the TMB proceeding stated that one of those patients – “J.S.” – was being treated by Dr. Rea for EHS. Apr 12 Tr. 79-84; PECO Cross Exh. 2 at 8. Dr. A. McKnight also signed a disclosure prior to receiving treatment from Dr. Rea in which she was advised that his treatments are not “endorsed, sanctioned, or supported” by the TMB. Moreover, PECO’s other arguments give ample reason, aside from the TMB proceeding, to give little or no weight to Dr. Rea’s testimony.

c. Reply to Exception 3c (p. 16): PECO Exhibit GP-13

One of the threads of argument in this proceeding was whether PECO AMI meters have a materially additive effect on transients and harmonics that exist on the electrical system. Mr. Bathgate stated that he had done measurements at the McKnight household with no meter installed and he measured very low levels of transients or harmonics. Apr 12 Tr. at 20-21. Mr. Bathgate also stated that he had measured material transients and harmonics from an Aclara meter. *See* PECO Main Brief p. 17, Proposed Finding of Fact 76.

In reply, PECO had three primary arguments. First, it established that transients and harmonics are commonplace on the electrical distribution system whether or not an AMI meter is in use. Apr 13 Tr. 71-72. Second, Dr. Davis conducted measurements of PECO AMI meters and found that PECO’s AMI meters do not create material transients or harmonics (they actually

have a filtering effect that reduces transients and harmonics from other sources).¹¹ Third, after PECO was served with Mr. Bathgate's expert reports, it placed a measuring device known as a Rush Track 7000 Power Quality Meter on the transformer just outside the McKnight's residence for 24 hours and presented the data track of those measurements as Exhibit GP-13. Mr. Glenn Pritchard sponsored Exhibit GP-13 and stated (Apr. 12 Tr. 186) that the data tracks shown in GP-13 "are very noisy, representing different transients and potentially even harmonics that are occurring in this household" even with no PECO meter of any sort installed.

The ALJ allowed the McKnights to present a late-filed exhibit (Late-Filed Exhibit A) in which they challenged the Rush Track data. In PECO's Main Brief (p. 58), it stated with respect to Late-Filed Exhibit A that:

PECO notes that Your Honor provided the McKnight's the opportunity to file a response to PECO readings as a late-filed exhibit, Apr 12 Tr. 277, and that the McKnight's took full advantage of that offer. Unfortunately, in that response they did not limit themselves to documentary evidence or discussion of issues that were part of the record; instead, they introduced off-record testimony from several witnesses for which PECO had no opportunity to cross-examine or respond.

In Exception 3c, the McKnights reiterate the arguments that they first made in their Late-Filed Exhibit A.

Late-Filed Exhibit A is based on non-record information, and the ALJ was correct not to give weight to it. Moreover, even if PECO had never taken any Rush Track measurements of background transients at the McKnight residence, it would still be true that PECO established through testimony and exhibits of Mr. Pritchard and Dr. Davis that transients and harmonics exist on the utility electrical system and that PECO's AMI meters do not materially create

¹¹ The McKnights present arguments against Dr. Davis's measurements in Exception 4c; PECO replies at that place.

transients or harmonics (they actually decrease them due to a filtering effect). Thus, the McKnights did not show an error as alleged in Exception 2c or that it was material.

d. Reply to Exception 3d and 3e (p. 17): 2-watt transmission

In Exception 3d (p. 17), the McKnights state that PECO's AMI meters transmit at 2 watts of power and allege that Mr. Bathgate testified that the PECO AMI meters therefore do not comply with the FCC's regulations.

In Exception 3e (p. 17) the McKnights claim that the I.D. should have noted the two-watt power level when comparing the functionality of AMR and AMI meters.

Mr. Bathgate's testimony regarding a two-watt limitation was based on his belief that PECO operates its AMI system in the unlicensed spectrum. On the second day of his testimony, Mr. Bathgate admitted that he had not properly studied the PECO system before providing his testimony; acknowledged that PECO's system operates in a licensed spectrum; and that his testimony on radio frequency transmissions was thus in error and withdrawn. April 11 Tr. 439-44; Apr 12 Tr. 10-11.

Mr. Pritchard testified that because PECO operates in a licensed spectrum it is allowed to transmit at higher power:

Mr. Smith: [Mr. Bathgate] testified, that by stating that the power transmission is 2 watts, that PECO was in violation of FCC regulations. Do you recall that testimony?

Mr. Pritchard: I do.

Mr. Smith: Why did you provide this information here?

Mr. Pritchard: This is how the system is characterized by the manufacturer, and also my understanding of the license itself. By having a licensed frequency, we're allowed and permitted to transmit up to the power level of 2 watts of the transmitter.

Apr 11 Tr. 156-57. *See also* Dr. Davis's testimony to the same effect. Apr 13 Tr. 51.

Mr. Pritchard did state that PECO's *AMR* meters transmitted at one watt (Apr 12 Tr. 150; PECO Exh. GP-2 and 3), and that its *AMI* meters transmit at two watts (Apr 12 Tr. 154-55; PECO Exh. GP-4 and 5). PECO has no objection to those operating characteristics being reflected in the Commission's Opinion and Order, but does not believe that the absence of that data from the I.D. is a material omission that requires any other changes to the I.D.

e. Reply to Exception 3f (p. 17): "Tuning down" PECO's AMI meter transmissions

The I.D. states (p. 11, Finding of Fact 74) that because PECO does not use a "mesh" system it is able to "tune down" the number of RF transmissions from each AMI meter. In Exception 3f (p. 17) the McKnights claim, without any citation, that Mr. Pritchard testified that no field testing had been done to validate that tuning down has actually occurred and that this conclusion is therefore "speculative" and should be removed.

Mr. Pritchard's testified that the purpose of tuning down is to optimize RF transmissions at the lowest level consistent with communication with the backbone and that the tuning down process occurs automatically for every meter after installation as part of the provisioning process. Apr 12 Tr. 215-16, 219. When that provisioning and tuning down is complete, "typically meters communicate every three or four hours . . . that would result in six to eight transmissions per day." Apr 12 Tr. 154. The tuning down process occurs automatically as part of the provisioning process. Finding of Fact 74 is not speculative – it is based on clear and undisputed record evidence.

f. Reply to Exception 3g (p. 17): The FCC and health

In Finding of Fact 78, the I.D. states that: "The FCC's [Maximum Permissible Exposures] MPE's are calculated to avoid human health effects from exposure to high levels of

radiofrequency fields; conversely, exposure below the MPE levels do not cause health effects.”

(Citing the testimony and exhibits of Dr. Davis, Apr 13 Tr. 23-24; PECO Exh. CD-3.)

In their Main Brief (pp. 44-47), the McKnights argued that Dr. Davis’s conclusions regarding the FCC’s MPEs should not be accepted.

In PECO’s Reply Brief (p. 13) it responded to this argument as follows:

The McKnight’s also refer (pp. 44, 46) to FCC documents that were not presented in evidence and argue that they are “public records” or “ancient documents” that should be admissible as exceptions to the hearsay rule. PECO hasn’t seen these documents and therefore has no opinion about whether they would have been admissible if offered at hearing, but that isn’t really the point – the point is that they were not offered at hearing. There was no opportunity to discuss those documents or to ask Dr. Davis his opinion of these documents because the McKnight’s are introducing them for the first time in their Main Brief – which is unacceptable.

In Exception 3g the McKnights explicitly reiterate their arguments from their Main Brief.

PECO reiterates its reply. This argument is not based on record evidence and should be denied.

g. Reply to Exception 3h (p. 18): The FCC and ICNIRP standards

Dr. Davis testified that the RF transmissions from PECO’s AMI meters are millions of times lower than the FCC’s MPE standards and the similar guidelines of the International Commission on Non-Ionizing Radiation Protection. *See* I.D., p. 12, Findings of Fact 79-81.

In Exception 3h, the McKnights claim that Dr. Davis’s calculations are “speculative” in that “they have never been verified in the field,” and raise numerous issues that they believe may not have been addressed in Dr. Davis’s calculations. They also generally claim that Dr. Davis is bad at math, based on their comparison of testimony that Dr. Davis gave in another case to testimony that Dr. Davis gave in this case.

None of the questions raised by the McKnights were posed to Dr. Davis, and there is thus no record evidence to support a conclusion that his calculations suffer from any of the problems

about which the McKnights speculate. In PECO's Reply Brief (pp. 13-14), it replied to the attack on Dr. Davis's math skills through the comparison with prior testimony, stating:

The McKnight's also attempt (p. 49) to call into question Dr. Davis's calculations that compare cell phone usage to exposure to AMI meters. However, when Dr. A. McKnight suggested during cross-examination of Dr. Davis that there was an inconsistency in his testimony in this case and prior cases, Dr. Davis replied: "I think you're mischaracterizing testimony that I provided on an earlier occasion." Ms. McKnight then insisted that there was an inconsistency, but was unable to locate the prior statement that she claimed proved the inconsistency. The ALJ thus sustained a motion to strike her characterization of inconsistency, and Dr. Davis was never given any opportunity to discuss how the various pieces of testimony relate to one another. Apr 13 McKnight Tr. at 156-58.

Pennsylvania Rule of Evidence 613(b) provides a clear procedure that must be used when a litigant wishes to impeach a witness through use of prior inconsistent statements: such claimed prior inconsistent statements may be used to impeach a witness only if the claimed prior inconsistent statement is shown to the witness, the witness is given an opportunity to explain or deny the claimed inconsistency, and the party who is sponsoring the witness is given the opportunity to ask rehabilitative questions. None of that happened here. The McKnight's did not meet the requirements of Rule of Evidence 613(b), and their assertion of inconsistency was thus disallowed at her hearing. That sequence and related testimony cannot now be used by them to attempt to prove an inconsistency.

PECO does not wish to engage in debate of extra-record materials, but since [the McKnights] made this argument using extra-record materials, it will reply with this proffer: There are several inputs to the cell phone/AMI calculation that affect the comparison. One such input is the brand of the Complainant's cell phone (different cell phones produce different radiofrequency levels); another input is whether the person holds the cell phone to their ear, uses earphones, or uses the phone on speaker at arm's length or greater distance. The same minutes' usage combined with a different cell phone brand and different usage style results in a different comparison.

There is nothing speculative about Dr. Davis's math or calculations. If the McKnights had prior testimony or other reason to believe that Dr. Davis's calculations were incorrect, they were required to present that information as evidence or show it to Dr. Davis on cross-examination. They did not do so.

h. Reply to Exception 3i (pp. 18-19): RF transmissions from AMR meters vs AMI meters

Dr. Davis testified that PECO's AMI meters will have 79% lower RF transmissions than its AMR meters did. The I.D. adopted this testimony as Finding of Fact 84. The McKnights except to this finding in their Exception 3i.

The McKnights claim that Dr. Davis's calculations "ignore the fact that Mr. Pritchard testified that the transmission power of the AMI meter is twice that of the AMR meter." That is incorrect. Mr. Pritchard provided the one-watt vs two-watt transmission power information to Dr. Davis for use in his calculations. Apr 12 Tr. at 150, 154.

The McKnights also claim that Dr. Davis's calculations are suspect because, they say, Dr. Davis did not do field tests to determine whether PECO's AMI meters transmit with the periodicity expected by the manufactures. (Mr. Bathgate testified that he had done such tests and that PECO's AMI meters transmit every six or seven minutes. Apr 11 Tr. 373-82, 447.)

Dr. Davis conducted field measurements of the periodicity of transmission by PECO AMI meters, and they do not transmit every six to seven minutes as Mr. Bathgate claims. Dr. Davis used "expensive and extensive high-quality measurement equipment," because the AMI meters "emit so infrequently, that you need extremely sophisticated equipment to capture these brief on/off periods of the RF transmissions from the meters." He was not able to say with certainty what Mr. Bathgate was measuring, other than it was sources other than a single AMI meter, and that AMI meters "don't transmit with that regularity." Apr 13 Tr. 51-53.

The record, therefore, fully supports Finding of Fact 84.

i. Reply to Exception 3j (p. 19): Conducted emission standards

Finding of Fact 85 (I.D., p. 13) finds that PECO's AMI meters are not subject to the FCC's conducted emission standards because those standards apply only to unlicensed

transmitters, and PECO uses a licensed spectrum. In Exception 3j, the McKnights claim that “No evidence was given to support this assertion.”

Dr. Davis testified as follows:

Mr. Watson: Was Mr. Bathgate correct, that the - PECO's AMI meters are subject to the FCC's conducted emission limits for Class B digital devices?

Dr. Davis: No, he's incorrect.

Mr. Watson: Did you hear . . . Mr. Pritchard testify and Mr. Bathgate acknowledge that, in fact, PECO has licenses to use the frequencies that its AMI meter uses?

Dr. Davis: Yes, I heard that testimony.

Mr. Watson: Do the FCC's regulations in Part 15 - Part 15 of the FCC's regulations, including Section 15.107, which contains their conducted emissions limits, apply to devices that are operated with a license?

Dr. Davis: No, they don't apply.

Apr 13 Tr. 50-51. The record, therefore, fully supports Finding of Fact 85.

j. Reply to Exception 3k (p. 19): The Lamech study

The I.D. states (p. 13, Finding of Fact 91) that: “The Lamech Australian survey referenced by Dr. Prociuk is support of EHS is based on self-reporting of symptoms from a population that self-identified as having EHS.” In Exception 3k (p. 19), the McKnights claim that “[t]his is not true” and then argue that Lamech was not based on self-reporting.

The Lamech study is titled: “*Self-reporting of symptom development from exposure to radiofrequency fields of wireless smart meters in victoria, australia: a case series.*” McKnight Exhibit PP-3(emphasis added).

Dr. Prociuk stated that the Lamech study was “*all based on self-reporting.*” Apr 11 Tr. 285 (emphasis added).

Dr. Israel testified that the Lamech study was based on “*individuals who self-identified themselves as being electrosensitive.*” Apr. 13 Tr. 227-28 (emphasis added).

The record, therefore, fully supports Finding of Fact 91.

IV. Reply to Exception 4: Weight of testimony

a. Reply to Exception 4a (pp. 19-22): Dr. Israel’s testimony was persuasive

The I.D. (p. 26) found the testimony of PECO’s health expert, Dr. Mark Israel, M.D., to be persuasive as compared to the testimony of the McKnights’ health witnesses Dr. L. McKnight, Dr. Prociuk, and Dr. Rea. In Exception 4a (pp. 19-22), the McKnights take exception, arguing that the ALJ should have given more weight to the testimony of their witnesses.

In PECO’s Reply to Exception 2a and its Main Brief (pp. 60-61), PECO demonstrated Dr. Israel’s expertise and showed why his expert opinion is entitled to great weight.

In PECO’s Main Brief (pp. 41-43), it demonstrated that Dr. L. McKnight’s testimony did not rise to the level of proving, by a preponderance of the evidence, that PECO’s AMI meters cause, contribute to, or exacerbate Dr. A. McKnight’s symptoms.

In PECO’s Main Brief (pp. 44-45), it demonstrated that Dr. Prociuk admitted that scientific proof that AMI meters would harm Dr. A. McKnight does not exist.

In PECO’s Reply to Exception 3d, and in its Main Brief (pp. 51-55) it demonstrated the many reasons that Dr. Rea’s opinions are not entitled to any weight.

The I.D. was correct to conclude that Dr. Israel provided the most persuasive testimony on health issues.

b. Reply to Exception 4b and 4c (pp. 22-23): Dr. Davis’s testimony was persuasive

The I.D. (pp. 23-26) cites extensively to the testimony of PECO witness Dr. Christopher Davis, who was recognized as an expert in physics, biophysics, chemistry, electrical engineering,

electromagnetics, bioelectromagnetics, and dosimetry. In Exception 4b (pp. 22-23), the McKnights take exception, arguing that the ALJ should not have given weight to his testimony. As to Dr. Davis, the McKnights do not argue that the I.D. should have given *more* weight to the testimony of their witnesses for the simple reason that they did not sponsor an expert in most of the subject matter areas in which Dr. Davis testified. Indeed, while Mr. Bathgate was recognized as an expert in electrical engineering (and the design and measurement of power systems and radio design), the McKnights did not offer an expert witness physics, biophysics, chemistry, electromagnetics, bioelectromagnetics, and dosimetry – all of which are fields in which Dr. Davis was recognized as an expert -- and thus they had no countervailing testimony to weigh against Dr. Davis's testimony in those fields.

Instead, in Exception 4b the McKnights again argue that Dr. Davis does not have training in biology. As PECO demonstrated in its reply to Exception 2a, this is not a valid criticism.

The McKnights then argue that Dr. Davis made "several math mistakes." PECO responded to the McKnights' math error argument in its Reply to Exception 34.

In Exception 4c (p. 23), the McKnights argue that Dr. Davis's measurements, in which he found that PECO's AMI meters reduce harmonics and transients, should not be given weight because "on cross-examination, Dr. David could not give any details of exactly what he did."

Here is Dr. L. McKnight's cross-examination of Dr. Davis on that issue:

Dr. L. McKnight: Basically, in order to understand what exactly was done, we would need also to know what meters were there, what comparisons were actually done, and how you determine specifically the no response seen or the -.

ALJ Heep: Why don't you ask him that one at a time.

* * *

Dr. Davis: I was using a high quality Hewlett Packard dynamic signal analyzer to see the frequency spectrum of the harmonics and transients.

Dr. L. McKnight: Was that an oscilloscope or was it a separate device?

Dr. Davis: It's a dynamic signal analyzer. It tells you what frequency content is in the signal. It's a much better way of seeing what is present than just looking at an oscilloscope trace.

Dr. L. McKnight: When you made your measurements for the three different meters, did you find any difference between the different meters?

Dr. Davis: There were small differences.

Dr. L. McKnight: Which one was better?

Dr. Davis: All of them reduced the harmonics and transients on the line but the Aclara was a little bit better than the other two in how much it reduced the harmonics and transients.

Dr. L. McKnight: We probably won't be able to make a reasonable - but I'll argue it in brief. Just out of curiosity, it reduced the transients. Why would a smart meter, or any meter for that matter, reduce transients?

Dr. Davis: Well, because it's a nonlinear device to a small extent and so it provides a little bit of a filtering function. It has no generating function inside it. It just measures the electricity that's going through it.

Dr. L. McKnight: I would like to move on.

Apr 13 Tr. 149-51. Dr. Davis gave details of exactly what he did.

In addition, in PECO's Main Brief (pp. 59-60), PECO demonstrated Dr. Davis's expertise and showed why his expert opinion is generally entitled to great weight. The I.D. was correct to cite Dr. Davis's testimony extensively and to rely upon it in reaching its determinations.

c. Reply to Exception 4c (pp. 23-24): Mr. Pritchard's testimony was persuasive

The I.D. (pp. 22-23) cites extensively to the testimony of PECO witness Glenn Pritchard, who was recognized as an expert in the design, operation, and technology of Advanced Meter Installations. In Exception 4c (pp. 23-24), the McKnights take exception, arguing that the ALJ

should have given more weight to the testimony of Mr. Bathgate than to the testimony of Mr. Pritchard.

In its Main Brief (pp. 45-51), PECO presented extensive rationale for rejecting Mr. Bathgate's testimony. Without repeating the details of those arguments here, it should be noted that Mr. Bathgate's testimony was concerned with possible interferences with other sources of radio operations and *did not address safety or health*. See PECO Main Brief, p. 51.

In its Main Brief (pp. 55-58), PECO demonstrated Mr. Pritchard's expertise and showed why his expert opinion is generally entitled to great weight.

The I.D. was correct to cite Mr. Pritchard's testimony extensively and to rely upon it in reaching its determinations.

V. Reply to Exception 5 (pp. 25-27): EHS

The I.D. concludes (p. 19) (emphasis added) that "*the evidence does not support a finding that all AMI meters or that AMI meters in and of themselves will have a negative effect on Mrs. McKnight or that Mrs. McKnight suffers from EHS and that smart meters in general would have a negative effect on her health.*" The I.D. makes a similar statement on page 27. The McKnights specifically except to the italicized portion of this conclusion, stating: "It is hard to see where the ALJ could ever come up with such an assertion since no expert in this case – not even Dr. Israel, or Dr. Davis ever seriously questioned or denied that Dr. A. McKnight suffers from this."

PECO has never argued that Dr. A. McKnight is not suffering real symptoms. That is not the same thing as saying that the symptoms are caused by sensitivity to EMF (which is the definition of EHS), or that exposure to PECO's AMI meters will harm her.

Dr. Prociuk stated the EHS has not reached the level of being a formal diagnosis, that there is no diagnostic test for EHS, and he did not conduct any diagnostic test for EHS on Dr. A.

McKnight. Apr 11 Tr. 277-78. He also admitted that the science regarding EHS is in its “clinical infancy” and that, as to any connection between EHS and exposure to AMI meters, “such a connection is not well-established.” Apr 11 Tr. 288-89.

Dr. Rea stated that he had done a diagnostic test of Dr. A. McKnight and concluded that she has EHS based on that test. But PECO demonstrated that Dr. Rea’s diagnostic test is not scientifically reliable, that he did not test Dr. A. McKnight at the frequencies used by PECO’s AMI meters, and that there are other reasons to give no weight to Dr. Rea’s opinions. *See* PECO Reply to Exception 3b; PECO Main Brief pp. 51-55.

Dr. Davis stated that, for people who claim or self-report that they have EHS, “[n]obody denies that these people have symptoms but nobody has been able to show that the symptoms are caused by exposure to electromagnetic fields.” Apr 13 Tr. 154. Dr. Davis stated that there is no reliable scientific basis to conclude that radiofrequency fields from PECO’s AMI meters are capable of producing any adverse biological effects. Apr 13 Tr. 42-44; PECO Exh. CD-13.

Dr. Israel stated that when a person self-identifies as having EHS, the symptoms are real, but those symptoms “are not caused by exposure to radiofrequency fields. Apr Tr. 284. Dr. Israel testified that there is no reliable medical basis to conclude that radiofrequency fields from PECO’s AMI meters did or will cause, contribute to, or exacerbate IEI, EHS, or any symptoms or medical conditions reported by Dr. A. McKnight. Apr 13 Tr. 194-202; PECO Exh. MI-3. He also counseled that:

[T]here is a ton of information here. I mean, overwhelming ton of information, including the reality that the exposure is miniscule compared to what you're experiencing - as Dr. Davis testified, as I interpreted, as to what you're exposing every day. Move on. It's not the smart meter. Let's go figure out what the problem is.

Apr 13 Tr. 265-66.

The statements in the I.D. are consistent with, and supported by, the record evidence.

VI. Reply to Exception 6 (pp. 27-28): Inconclusive scientific studies

In their Main Brief (pp. 15-21), the McKnights presented their arguments regarding burden of proof. In material part, they argued that if they present evidence that the scientific studies are inconclusive, that satisfies their burden of proof and they should prevail.

PECO's analysis of this burden of proof argument is set forth in its Main Brief (p. 38) and its Reply Brief (pp. 2-9) and will not be repeated here.

The McKnights do add one new argument to this section. They claim that the *Woodbourne-Heaton* case should not be relied upon in determining the burden of proof because the statements that the Commission made in that case were "not established by a rule making process but only in a Letter of Notification."

Commission jurisprudence on burden of proof in its litigated cases has always been established through jurisprudence from its litigated cases, not via rulemakings. And *Woodbourne-Heaton* is not "only" a Letter of Notification proceeding. *Woodbourne-Heaton* was converted into a full siting investigation, and that litigation was the Commission's seminal examination of claimed health effects from transmission line EMF. The litigation lasted seven years and involved many expert witnesses and approximately a dozen of days of evidentiary hearings. The litigants included dozens of local residents, the Office of Consumer Advocate, the Commission's Law Bureau, the Commission's Office of Trial Staff (now I&E), and PECO. On appeal, *Woodbourne-Heaton* went at least twice to the Commonwealth Court and at least once to the Pennsylvania Supreme Court. *Woodbourne-Heaton* was not some passing, casual event as the McKnights' comment implies. Rather, *Woodbourne-Heaton* was a careful, multi-year examination of how to evaluate scientific evidence regarding EMF claims. The Commission was

correct, in the seminal *Kreider Order*, to point to *Woodbourne-Heaton* for guidance on burden of proof issues, and the ALJ was correct to make rulings that conform to *Woodbourne-Heaton*.

VII. Reply to Exception 7 (pp. 28-29): *Pro hac vice* admission

On July 16, 2018, PECO separately filed Motions to Admit Thomas Carl Watson and Curtis Renner *pro hac vice* in this matter. On August 6, 2018, the McKnights filed and served their Objection to both of PECO's Motions. On August 9, 2018, PECO filed its Replies to the McKnight's Objections. On August 17, 2018, the ALJ issued Orders granting PECO's *pro hac vice* Motions. After a thorough review of all arguments, the ALJ concluded (Watson *pro hac vice* Order, p. 8):

There is nothing prejudicial to the Complaints in granting the admission of Mr. Watson *Pro Hac Vice Nunc Pro Tunc* and it would be inefficient and wasteful of the resources of the Commission and the parties to set this matter for another hearing, or deny the Motion, because of the curable and technical time of filing error.

In their Exception 7 (p. 28), the McKnights reiterate their claim that PECO's Motions were late-filed and that the ALJ thus erred in granting PECO's Motions.

PECO presented its full arguments in support of its *pro hac vice* Motions in its original July 16 Motions and in its August 9 Replies. Generally, in its August 9, 2018 filings PECO demonstrated that (1) the nature and extent of representations made by its outside counsel are of the nature and extent that is appropriate for *pro hac vice* admission; (2) even if the McKnights were correct that the nature and extent of outside counsel representations were too broad for continued *pro hac vice* representation, that still would not warrant rejecting the testimony of PECO's witnesses – the proper remedy in that case would be to caution outside counsel to seek admission to the Pennsylvania Bar; (3) *the timing of PECO's pro hac vice Motion did not create any prejudice to the McKnights*; and therefore (4) the McKnights did not demonstrate good cause for denial of PECO's *pro hac vice* Motion.

The McKnights still have not shown that they are correct on the substance of their argument; they still have not shown that their requested remedy is appropriate; *they still have not shown that the timing of PECO's Motion caused them prejudice*; and thus they still have not demonstrated good cause for denial of PECO's Motion. The August 17 Orders of the ALJ should not be disturbed.

VIII. In their Exceptions, the McKnights agreed with both of PECO's Exceptions

On November 27, 2018, PECO filed two Exceptions in this proceeding.

In PECO's Exception 1, it demonstrated that the record evidence does not support Conclusion of Law 8, which states Dr. A. McKnight would be adversely affected by reinstallation of a Landis + Gyr meter. In PECO's Reply to Exception 1, it demonstrated that the McKnights agree with that assessment.¹²

In PECO's Exception 2, it argued that stray voltage issues are not a part of this case and that Ordering Paragraph 3 should thus not be adopted. In the McKnights' Exception 1 (p.11), the McKnights state their concurrence with that view:

[T]he stray voltage issue was related only in the context of why the [Landis + Gyr] meter was on an off the house . . . We testified that our complaint is otherwise unrelated to stray voltage and that this issue has been resolved.

These statements by the McKnights confirm that the Commission should grant both of PECO's Exceptions.

¹² McKnight Exceptions (p. 12) (emphasis added): "If [the Landis + Gyr] meter . . . cause[d] adverse effects in Dr. A. McKnight, then *there is simply no evidence to support a belief that it occurred via any other mechanism than one involving EMF in an unusually sensitive individual.*"

IX. Conclusion

PECO respectfully submits that the Commission should reject the McKnights' Exceptions, grant PECO's Exceptions, and adopt the I.D. with revisions only to reflect PECO's Exceptions.



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