BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Laura Sunstein Murphy,	:	
	:	
Complainant,	:	
v.	:	**Docket No. C-2015-2475726**
	:	
PECO Energy Company,	:	
	:	
Respondent.	:	

EXCEPTIONS OF COMPLAINANT LAURA SUNSTEIN MURPHY TO THE INITIAL DECISION OF ADMINISTRATIVE LAW JUDGE DARLENE D. HEEP ISSUED ON MARCH 20, 2018

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Dated: May 14, 2018

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I. INTRODUCTION

Pursuant to Section 5.533 of the Commission's regulations, 52 Pa. Code § 5.33, Complainant Laura Sunstein Murphy hereby submits these Exceptions to the Initial Decision of Administrative Law Judge Darlene D. Heep issued on March 20, 2018 ("Decision").[1] In her Decision, ALJ Heep erred in concluding that Complainant had not carried her burden of proving that the plan by respondent PECO Energy Company ("PECO") to expose Complainant to radiofrequency electromagnetic energy ("RF") by means of an RF-emitting smart meter installed on her property against her wishes and against the advice of her doctor is neither "safe" nor "reasonable" within the meaning of 66 Pa.C.S. § 1501. ALJ Heep also erred in rejecting Complainant's claim that PECO's plan, if permitted by the Commission, would violate the due process clause of the United States Constitution and the Constitution of the Commonwealth of Pennsylvania.

This case concerns forced exposure to electromagnetic energy in the range known as radiofrequency ("RF") and at strengths comparable to a cell phone. Complainant contends that she is medically sensitive and vulnerable, that recent credible scientific research strongly suggests that RF exposure at the very least *could* cause her harm, that her doctor has recommended avoidance of RF exposure, that she has eliminated all RF exposure in her life to the greatest extent possible,

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[1] This matter was presented before and decided by ALJ Heep in coordination with two other companion cases, *Cynthia Randall and Paul Albrecht v. PECO*, No. C-2016-2537666, and *Maria Povacz v. PECO*, No. C-2015-2475023. The three matters share a common record pertaining to the health risks to them of exposure to PECO's smart meters. While there are some factual differences between the matters, none of those differences are material as the outcome should be the same in all three matters for the same reasons, as explained in text.

and that under all these circumstances it would be unsafe and unreasonable under Section 1501 to force her to accept an RF-emitting device installed at her property.

She also contends that as a matter of law and policy she should not be required to prove causation of harm to a medical certainty as if this were a tort case for damages, but instead has met her burden under Section 1501 by proving by a preponderance of evidence that the proposal to subject her to RF exposure from a smart meter is unsafe and unreasonable, because it would expose her to a risk of harm.

The Commission should reject the ALJ's suggestion that Section 1501 requires Complainant to prove causation of harm to the same standard as if this were a tort case for money damages. *Murphy* Decision at 18-20, 32. This is an administrative proceeding before an agency charged with ensuring that electric service is safe and reasonable. It would defeat the plain language of Section 1501 to require Complainant to prove tort law causation of harm in this setting. Instead, Section 1501 only requires Complainant to prove that the utility's actions are unsafe or unreasonable.

ALJ Heep also erred in accepting PECO's contention that there is "no reliable scientific basis to conclude" that RF exposure from PECO's smart meters is capable of causing any health effects in humans. *Id*. at 27-32. The health risks from RF exposure are a subject of great interest to many people around the world, because of the advent and now ubiquity of RF-emitting devices, most notably cell phones. In a case still pending, *Murray v. Motorola*, the Superior Court of the

District of Columbia is considering tort claims for damages based on RF exposure from cell phones. In 2014, that court reviewed the scientific views on the subject of potential harm from RF exposure, including the 2013 conclusion of The World Health Organization's International Agency for Research on Cancer ("IARC") that RF exposure is "possibly carcinogenic to humans," which was also put into evidence before ALJ Heep.

The Court in *Murray* said this:

> The consensus throughout the scientific community is that the present state of science does not permit any definitive answer to the question of whether cell phone RF radiation causes cancer or any other adverse health effects. . . . Most organizations agree that there is a need for new, better, more controlled research to determine whether cell phone radiation poses a threat to human health.

Murray v. Motorola, Inc., 2014 D.C. Super. LEXIS 16, *8.

In June 2016, the United States government issued a report from the National Toxicology Program ("NTP"), that reported exposure to RF caused cancer in the rats being studied. CX-95 (JA007164-7250). The NTP said: "These findings appear to support the International Agency for Research on Cancer conclusions regarding the possible carcinogenic potential of [RF]." *Id.* (JA007168).

ALJ Heep should have deferred to the reports from these U.N. (IARC) and U.S. (NTP) agencies that RF exposure is a possible cause of harm to health. Instead, she erred in uncritically accepting the testimony of PECO's witnesses that RF exposure cannot possibly cause harm. *Murphy* Decision at 27-32.

The issue of smart meter safety involves a complex scientific subject. Complainant and PECO through their attorneys and expert witnesses hardly did it justice in the time allotted. Also, with utmost respect, neither the ALJ nor the Commission is equipped to decide either the scientific issues about the health risks of RF exposure in general or the Complainant's individual health issues. For these reasons—relating to the complexity of the science and the need to get it right on a subject that could seriously affect the health of Complainant —the Commission should be loath to weigh in on the scientific issue of whether RF exposure can possibly cause harm to Complainant or to override the decision of a treating physician. It would be prudent, and well within the Commission's authority, to refrain from deciding the causation issue on the grounds that there is no definitive scientific answer and to defer to the judgment of the treating physician. If so, the Commission should decide that, under the circumstances, it would be at the very least unreasonable under Section 1501 to force Complainant to accept RF exposure over her objection and against the recommendation of her doctor.

If the Commission elects to decide the scientific issue of whether RF exposure can possibly cause harm to Complainant, then it should decide based on the NTP report and all other evidence presented by Complainant that there is at least the possibility of harm to her from RF exposure, and that forcing Complainant to accept a smart meter installed at her property against her doctor's recommendations would be unsafe as to her under Section 1501.

The ALJ's Decisions in this and the companion matters are, to the best of counsel's knowledge, the first anywhere in the U.S. addressing the legality of forcing consumers of a public utility to accept RF exposure from smart meters. The issue has not arisen in other states, because states other than Pennsylvania give a right to electric utility customers to elect not to have a smart meter installed on their property. The Commission has previously decided there is no opt out right under Act 129. The Commission should nonetheless read Act 129 in concordance with Section 1501 to require PECO to accommodate the request of a person like the Complainant, who avoids RF exposure to the greatest extent possible based on the advice of her doctor. The PUC should require PECO to use some means other than an RF-emitting smart meter installed on her property to collect data about electric usage for billing purposes. In so doing, the Commission will avoid the constitutional question otherwise presented.

In the alternative, the Commission should treat this formal complaint as a petition for relief, and decide that under the totality of the circumstances, PECO's deployment of an RF-emitting meter on Complainant's property would be inequitable and unreasonable. As another alternative, the Commission should engage in notice and comment rulemaking on the subject of the health risks of RF exposure from smart meters, and the necessity or desirability of granting accommodations to customers like Complainant, who object based on their concern about the health risk as recommended by their doctor. It is unfair and unreasonable for the Commission to expect individual utility customers like Complainant to bear

the enormous cost of engaging in full scale litigation with a public utility that has much greater resources to litigate the complex scientific issues presented. If the Commission decides to support PECO's proposal to force RF exposure over the objections of Complainant and her doctor, it should only be after a full administrative hearing where the Commission conducts its own investigation and hearings and then decide whether it is safe and reasonable to mandate RF exposure for all Pennsylvania residents on their property, with no accommodation for anyone based on individual customer disabilities, medical circumstances, and treating physician orders.

II. LEGAL STANDARDS

As explained herein, ALJ Heep erred about the meaning of Section 1501. It does not require proof of tort law harm causation to demonstrate that utility service is unsafe or unreasonable. This is a question of statutory interpretation to be decided in accordance with Pennsylvania law. *See, e.g, Snyder Bros. v. Pa. PUC*, 157 A.3d 1018, 1022-30 (Pa. Commw. Ct. 2017) (discussing rules of statutory interpretation).

AlJ Heep also made erroneous factual determinations that are unsupported by substantial evidence. "Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Consolidated Edison Co. v. Labor Board*, 305 U.S. 197 (1938).

The ALJ's Decision is arbitrary and capricious. *See, e.g., Cary v. Bureau of Prof'l & Occupational Affairs, State Bd. of Med.*, 153 A.3d 1205, 1210 (Pa. Commw. Ct. 2017). "[A]dministrative action is 'arbitrary and capricious where it is unsupportable on any rational basis because there is no evidence upon which the action may be logically based.'" *Id.* (citations omitted). The burden on the agency is clear: "the agency must examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *Id.* (quoting *Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29, 43 (1983) (citation and internal quotation marks omitted).

III. EXCEPTIONS

A. Exception No. 1: The ALJ Erred in Placing Weight on the Testimony of PECO's Experts Where They Disagreed With Andrew Marino, Ph.D.

ALJ Heep erred in placing weight on the testimony of Dr. Israel and Dr. Davis on numerous important points where they disagreed with Dr. Marino. *Murphy* Decision at 27-32. 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, having spent his entire research and university career over nearly 40 years dedicated to that subject, with multiple books, and hundreds of publications in peer-reviewed scientific journals on the subject. Laura Sunstein Murphy Main Brief ("*Murphy* Main Brief") at 40-41. The credentials of PECO's experts in this field were much more limited or nonexistent.

Dr. Davis is a Ph.D. electrical engineer with no credentials in biology, which means that he was not qualified to testify on the biological effects of RF such as emitted by the PECO smart meters. *Id*. at 68-69. Unlike Dr. Davis, who in the past appeared as an author on papers related to RF health risk, albeit limited to his specialty of electrical engineering, Dr. Israel has never published any research on the health risks of electromagnetic energy. *Id*. 69. Dr. Israel also testified that he has "no idea" how IARC uses the classification of "possible carcinogen," even though he purported to testify on the subject. *Id*. at 71. Further, he had no familiarity with the NTP Report and could not discuss it. *Id.* ALJ Heep should have accepted Dr. Marino's testimony and rejected the testimony of Dr. Davis and Dr. Israel where the testimony conflicted.

B. Exception No. 2: The ALJ Erred in Rejecting the Evidence that Forced Exposure to RF Presents a Risk of Harm to Her

In her Initial Decision, it was arbitrary and capricious for ALJ Heep not to accept the evidence presented by Complainant that forced exposure to RF presents a risk of harm to her. *Murphy* Decision at 31-32. This evidence consisted of the expert testimony of Andrew Marino, Ph.D., based on many years of research in the field, including animal studies, epidemiological studies, research on electromagnetic hypersensitivity syndrome ("EHS"), and other relevant research. *Id.* at 31-39. Dr. Marino also relied on the 2016 NTP Report, which found that exposure to RF caused cancer in rats. *Id.* at 64-66.

Dr. Marino testified that he calculated the power density of the RF exposure from PECO's AMR and AMI meters. *Id.* at 29. He assumed based on

Complainant's testimony about her efforts to reduce RF exposure in her life (for example, she no longer uses a cell phone or any RF emitting devices) that she lives in an electromagnetically quiet environment. *Id.* at 28-29. He testified, based on his calculations and assumptions, that PECO's AMR and AMI meters would present a material addition of RF in the Complainant's home. *Id.* at 29-30. Dr. Marino noted that the signal from the smart meter emits in a pulse pattern, by which he means simply that it turns on and off, and that the key characteristic that poses potential harm is the peak or instantaneous value. *Id.* at 30. He testified that PECO's expert witness Davis erred in using the average value in various comparisons, because average values produce absurdly low and irrelevant figures because they include all of the time when the smart meter is not emitting. *Id.* at 31.

Dr. Marino testified that RF exposure from smart meters is a health risk to Complainant, because it could cause harm, based on the research presented, but he also testified that he could not testify that it would or did cause harm to Complainant because he had not personally conducted research on Complainant (which would be cost prohibitive), and he deferred to the diagnosis and treatment recommendations of her treating physician. *Id.* at 35-36.

He testified about peer-reviewed research on a self-diagnosed physician EHS subject to determine if she could detect the presence of electromagnetic energy ("EE"). *Id.* at 33-34. The study reported to a statistical certainty that the subject could detect the presence of EE. *Id.* at 34. He testified that this research *on one subject* cost in excess of $500,000 and that it would be

prohibitively expensive to conduct this type of testing on Complainant or others who report sensitivity to RF exposure. *Id.* at 36. Dr. Marino further testified that it was most prudent to trust the judgment and recommendation of Complainant's treating physician regarding Complainant's RF exposure sensitivity. *Id.* at 37.

1. ALJ Heep failed to address the primary science that Dr. Marino relied upon

ALJ Heep failed to recognize that PECO offered no response at all to Dr. Marino's testimony backed up by numerous peer-reviewed animal and epidemiological studies that electromagnetic energy comparable to the RF exposure from PECO's AMI smart meter causes biological effects in animals including humans and has the potential to cause harm. *Murphy* Main Brief at 31-33. Instead, PECO said that "[g]iven the fact that Dr. Marino's ultimate opinions do not meet the standard or burden of proof in this proceeding there is little value addressing each of the individual studies which he relied in forming the opinion." PECO Main Brief at 25. ALJ Heep and PECO failed to recognize that Dr. Marino's testimony was intended to prove the potential for harm, i.e., risk of harm as to Complainant. It was not intended to prove medical causation, which Dr. Marino acknowledged is virtually impossible to prove under the circumstances, and, as explained *infra*, is not required to prove a violation of Section 1501. Dr. Marino's testimony about the potential for harm as proved by animal and epidemiological studies is unrebutted.

Likewise, ALJ Heep failed to recognize that PECO had no substantive response to Dr. Marino's testimony about peer-reviewed research he conducted with a team of scientists proving that the subject could as a matter of fact detect the

presence of RF. *Murphy* Main Brief at 33-34. By this research, Dr. Marino proved that electromagnetic hypersensitivity disorder ("EHS") is a real syndrome. All of this evidence presented substantial grounds for the conclusion that RF exposure is capable of causing harm.

2. ALJ Heep failed to recognize the importance of the NTP Report and the incoherency of PECO's position about it

As further evidence of potential for harm, Complainant relied on the 2016 NTP Report. *Murphy* Main Brief at 64. As ALJ Heep recognized, the NTP is a government agency that studies toxicological effects in the general public due to environmental factors. *Murphy* Decision at 26 n. 8. The NTP study concluded that RF exposure caused cancer in rats, even at levels below the FCC limits. *Murphy* Main Brief at 64. The NTP said this of its findings: "these findings appear to support the IARC's conclusions regarding the possibly carcinogenic potential of [RF]". CX-95 at 5. This study of the risks of RF exposure for cell phones is relevant because smart meters have 2-3 times more energy than a cell phone at the source, but they are comparable. *Murphy* Main Brief at 28. Dr. Marino testified that the findings in NTP Report are significant because "we know that the energy is not just a possible carcinogen, which is the IARC designation. We now have evidence that it is an actual carcinogen." *Id.* at 66.

ALJ Heep erred in rejecting the NTP report based on the testimony of PECO expert witness Dr. Davis that the NTP study "was a non-peer-reviewed draft that may never be published" and that it does not apply to RF from smart meters

because it involved "a relatively high-power density that's not relevant." *Id.* at 28. Both parts of the statement by Dr. Davis are wrong and should not be relied upon.

First, ALJ Heep was wrong to accept Dr. Davis' dismissal of the NTP report as a "non-peer-reviewed draft." That statement is definitely incorrect. The report itself notes that "[t]he findings in this report were reviewed by expert peer reviewers selected by the NTP and National Institute of Health." *Murphy* Reply Brief at 34.

The Commission should take judicial notice not only of what the NTP said in 2016, but also on what it has said since. 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." https://ntp.niehs.nih.gov/results/areas/cellphones/index.html. 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." https://factor.niehs.nih.gov/2018/4/feature/feature-2-cell-phone/index.htm.

Second, ALJ Heep was wrong to accept Dr. Davis' suggestion that the NTP study is not relevant because it is at "a relatively high-power density that's not relevant." *Murphy* Decision at 28. Davis' testimony is highly misleading because, as explained *infra,* Dr. Davis is making an irrelevant comparison between an instantaneous value for cell phone RF exposure as used by the NTP study and an all day average for PECO smart meter RF exposure. It is doubly misleading because

the NTP report does not show carcinogenicity to humans under normal cell phone usage conditions. It 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. That same potential for harm is present for RF exposure from smart meters. Smart meter RF is comparable to, but more than cell phone RF in terms of the power density, a point Dr. Davis conceded. *See* JA001503. ("Q. Watts from a cell phone about 60 to 70 percent of that from a smart meter? A. Probably even a little less.")

Further, while Dr. Davis has his own views about the NTP Report, he freely admitted that "I'm not a biologist. I am sure that Dr. Israel will be able to comment on this in more detail." *See* JA001606. But when Complainant's counsel asked Dr. Israel about the 2016 NTP Report, Dr. Israel testified that he was unfamiliar with the report and did not consider it in forming the opinion he expressed in the matter. *See* JA001601:20-25 ("Q. Now, when you formed the ultimate opinion that you expressed here today, did you take into consideration the results of the recent study by the U.S. National Toxicology Program? A. No, I'm not aware of the results of that you're referring to."). This was a serious failure of proof on the part of PECO.

Any competent expert on the health effects of RF exposure should know about the most recent research on the subject and must consider how it affects their opinions. Dr. Israel's failure to do this was inexcusable. If PECO had a competent medical expert to testify about the safety of smart meters, that witness

would have been forced to admit that the 2016 NTP Report provides evidence of harm from RF exposure, maybe not enough to convince the world to stop using cell phones, but enough to make it unreasonable to force a person who is vulnerable or sensitive and does not use a cell phone, to endure RF exposure in her own home, twenty four hours a day. As it stands, Dr. Marino's testimony about the NTP Report is unrebutted, because Dr. Davis did not have the credentials to testify about it ("I'm not a biologist"") and Dr. Israel did not have the knowledge to testify about it.

PECO will surely respond that smart meters emit for a few seconds a day whereas cell phone exposure can be as long as a person uses the cell phone, and sometimes even when it is not in use. The answer is that there is no way to compare the situations because there have been no studies on the safety of smart meters. *Murphy* Main Brief at 37. The potential for harm from these RF-emitting devices is completely unknown.

As discussed *infra,* the ALJ accepted PECO's argument that smart meters must be safe because they are within the FCC Limit. The FCC limit was based on the 1986 recommendation of the National Council on Radiation Protection and Measurements ("NCRP"). This was long before the era of cell phones. The 2016 NTP Report strongly suggests that the 1986 pre-cell phone era conclusion is wrong. (The FCC Limit is discussed in more detail *infra.)*

The 2016 NTP report alone should give the Commission serious concern about the potential for harm from RF exposure as to vulnerable customers such as Complainant. PECO's response through electrical engineer Dr. Davis was

clearly inadequate for such a significant government finding. PECO's medical expert Dr. Israel was unfamiliar with the 2016 NTP report and obviously could not address it. The Commission should not accept PECO's invitation to reject this evidence but should instead 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.

C. Exception No. 3: The ALJ Erred in Accepting the Testimony of PECO's Expert About the FCC Limits and Comparisons of Exposure

ALJ Heep also failed to recognize Dr. Marino's testimony that, according to his power density calculations, an AMR or AMI smart meter would add a material contribution of RF exposure in the home of the Complainant, accepting as a fact her testimony that she has eliminated RF exposure at home and no longer uses a cell phone, for example. *Murphy* Main Brief at 28-31. PECO did not dispute facts about Complainant's efforts to avoid RF exposure. Nor did it dispute Dr. Marino's power density calculations; in fact, Dr. Davis confirmed them. *Id.* at 29.

PECO could not reasonably contend that the AMR or AMI smart meter does not expose Complainant to RF that would otherwise not be present. Instead, it contended that the RF exposure from PECO smart meters is incredibly low in relation to the FCC Limits and other sources of RF that Complainant must be exposed to in everyday life. This ignored all evidence that Complainant is not exposed to other sources of RF in her everyday life at home. This was error.

ALJ Heep erred in accepting Dr. Davis' testimony on this subject, and his comparisons of RF exposure. *Murphy* Decision at 14-15; 27-28. ALJ Heep tacitly rejected Complainant's evidence demonstrating that the FCC Limits are outdated. *Murphy* Main Brief at 66-67, *Murphy* Reply Brief at 35-36. There is no evidence that the basis for the FCC Limit has ever been re-evaluated in the 31 years since the NCRP issued the report that the FCC relied on as the basis for the limit. This is so despite the rise and now ubiquity of cell phones, the evidence that has been developed since then (e.g. the 2016 NTP report), and the acknowledgement by the body that the FCC relied on in 1986 to set the limits that it expected them to be "evaluated periodically in the future and possibly revised as new information becomes available." *Murphy* Reply Brief at 35. That has never happened. Yet this is the sole basis that PECO identified as to why smart meters are safe for everyone, including Complainant. This is an insufficient basis for concluding that smart meters are safe for Complainant, particularly in light of much more recent, highly credible research to the contrary.[2]

ALJ Heep drew an incorrect conclusion from Dr. Davis' testimony that "the peak exposure from PECO's electric AMI meter is approximately 40 times smaller than the FCC limit for 30-minute exposure." *Murphy* Decision at 28. If, as Complainant maintains, the 31-year-old FCC limit is outdated and insufficiently protective, it matters not that the RF-exposure from a PECO AMI meter is less than

[2] The reality is that prior to the 2016 NTP report research on this issue was deadlocked for years, with the industry scientists taking issue with the views of independent scientists. *Murphy* Main Brief at 60-65. This is further grounds for the Commission to exercise caution in drawing a definitive conclusion as ALJ Heep did.

the FCC limits. What matters is the unrebutted evidence that the peak exposures from PECO's smart meters make a material contribution to the RF at the Complainant's home and that this level of exposure could cause harm to a sensitive person like Complainant. PECO cannot rely on the outdated FCC Limit when the very recent NTP Report shows those limits do not reflect current science.

This comparison of peak values, which as explained above does not answer the safety question, is the only conceivably relevant comparison, as all of Dr. Davis's other comparisons are between peak values and all day average values. *Murphy* Main Brief at 42-49. In other words, Dr. Davis calculated the average exposure from an AMR or AMI smart meter over the course of 24 hours, including the more than 99% of the time that the meter is not emitting. PECO's expert witness Dr. Davis defended his use of all day averages on the grounds that the FCC limits call for average values in determining compliance. Complainant pointed out that it makes no sense to adhere to the FCC rule in determining exposure when a key issue in the case is whether the FCC limit is sufficiently protective. *Murphy* Main Brief at 47-48; *Murphy* Reply at 25. PECO had no response on this point. All of Dr. Davis's other comparisons are meaningless comparisons of average AMI/AMR values to peak values of other sources of RF, as he admitted.[3] *Murphy* Main Brief at 44.

[3] This includes, for example, the guidelines from the International Commission on Non-Ionizing Radiation Protection. *Murphy* Decision at 28. PECO offered no evidence about what these guidelines are or why they may be relevant. ALJ Heep erred in relying on this or any other comparisons of values by PECO without proof of what the comparison means and how they bear on the issue of safety.

ALJ Heep further erred in accepting Dr. Davis' testimony that Complainant did not live in an electromagnetically quiet home, as Dr. Marino testified, because there are many sources of RF that are much higher than the RF exposure from a PECO smart meter. *Murphy* Decision at 28. Again, Dr. Davis erred by using irrelevant comparisons of peaks to all day average values. *Murphy* Main Brief at 45. The only such comparison specifically called out by ALJ Heep concerned RF exposure from UHF. Dr. Davis admitted that the if he considered instantaneous values—not all day average value—the RF exposure from the AMI smart meter exceeds the local UHF signal. In fact, the two would not have the same instantaneous value until "a distance of 85 feet from the AMI meter." *Murphy* Reply Brief at 23. In other words, using instantaneous, not all day average, values, Complainant would have to stay 85 feet away from the AMI meter to be at the same level of exposure from UHF towers.

As further proof of the illogic accepted by ALJ Heep, she relied on the testimony of Dr. Davis that the RF exposure from even limited cell phone use is thousands of times greater than the RF exposure from a smart meter, *Murphy* Decision at 28-29. But that is true only when the cell phone peak value is compared to the all day average value from the smart meter. A comparison of the peak values shows that they are roughly comparable, with the smart meter RF being clearly greater at the same distance. *Murphy* Main Brief at 47.

ALJ Heep was also wrong to rely on Dr. Davis' testimony that the AMI meter will emit 83% less than the existing AMR meter. *Murphy* Decision at 29.

Again, this is based on an irrelevant comparison of averages. Dr. Davis admitted that comparison of peak values shows AMI exposure is twice as high as AMR exposure. *Murphy* Main Brief at 47.

Apart from the incorrect reliance on the outdated FCC Limit and the indefensible use of irrelevant comparisons of peak to all day average values, the ALJ erred more fundamentally in accepting PECO's premise that the existence of other sources of RF that Complainant cannot avoid justifies PECO's decision to further expose her to RF. As the ALJ acknowledged, Complainant testified about her extensive efforts to avoid RF exposure in public and at home. *Murphy* Decision at 8-10. The ALJ should have recognized that Complainant has a right to create a safe space for herself on her own property. The evidence proves that she avoids RF exposure to the greatest extent possible. The fact that there may be other unavoidable sources of RF is irrelevant. The Commission lacks the authority to force Complainant to accept RF exposure at her home, regardless of how much unavoidable RF exposure she may otherwise face. PECO has no right to add to it.

D. Exception No. 4: The ALJ Erred in Accepting the Testimony of PECO's Expert Witnesses That There is No Reliable Scientific Basis to Suggest That RF Exposure Can Cause Any Biological Effects in Humans

ALJ Heep 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. *Murphy* Decision at 29. PECO's electrical engineering expert witness Dr. Davis sponsored the conclusion in unusually stark terms. He testified that he is "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."[4] *Murphy* Main Brief at 70.

ALJ Heep erred in accepting the testimony of both PECO witnesses on this point. ALJ Heep noted that Dr. Davis testified that "any scientific evidence purporting to show that EFs from smart meters causes biological harm was ambiguous and unproven." *Murphy* Decision at 32. As support for this testimony, Dr. Davis relied on the following statement from the FCC website:

> A number of reports have appeared in the scientific literature describing the observation of a range of biological effects resulting from exposure to low levels of RF energy. However, in most cases, further experimental research has been unable to reproduce these effects. Furthermore, since much of the research is not done on whole bodies (in vivo), there has been no determination that such effects constitute a human health hazard.

Murphy Rebuttal Testimony of Christopher Davis at 15 (citing https://www.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety#Q5). Dr. Davis omitted from the quote the very next sentence: "It is generally agreed that further research is needed to determine the generality of such effects and their possible relevance, if any, to human health." *Id.* Also at that same link on the FCC website, it says: "At the present time, other U.S. civilian federal health and safety agencies and institutions,

[4] This contradicts the views of the American Academy of Pediatrics, which recommends limiting "children's screen time and exposure from cell phones and other devices emitting radiation from electomagnetic fields (EMF)." https://www.healthychildren.org/English/safety-prevention/all-around/Pages/Cell-Phone-Radiation-Childrens-Health.aspx.

such as the National Toxicology Program and the National Institutes of Health, have also initiated RF bioeffects research." *Id*.

In other words, the FCC website page relied upon by Dr. Davis to support his testimony that there is no scientific basis to conclude that there are any possible biological effects from smart meters (1) recognizes the need for further study on the subject, and (2) specifically refers to the NTP as a source of scientific research on the subject. As discussed previously, Dr. Davis incorrectly ignored the 2016 NTP Report, which shows that there is reliable scientific evidence of possible biological effects on humans from RF exposure at levels below the FCC Limit.

Dr. Davis' conclusion that RF exposure below the FCC Limit presents no risk whatsoever is at odds not only with the NTP report, but with the IARC classification of RF as a "possible" carcinogen. *Murphy* Main Brief at 71. Dr. Davis said that IARC classification is wrong because "all of the evidence suggested to me, and some other people, they should have given it a Class 3 or 4 rating, saying it's not a risk." *Id.* at 70. The problem with this testimony is that the IARC didn't conclude that RF is not a risk; IARC classified and continues to classify RF exposure as a possible carcinogen, which makes it a risk. It matters not that Dr. Davis and "some other people" may disagree with IARC.

Dr. Davis's testimony on this point was of a piece with his related testimony that a consensus of scientists agree with his views. Dr. Davis testified that he knows there is a consensus because "I go to scientific meetings and I talk to my colleagues. You know the scientific community does talk to each other. You

know when you get the buzz of what people are thinking, and in that sense, you become aware of the consensus." *Id.* at 54. PECO offered no response to Complainants' observation that this is a subjective, non-scientific statement that cannot be checked for accuracy. *Id.*

Weaker still was Dr. Israel's testimony, relied upon by ALJ Heep, about the supposed lack of a reliable scientific basis for concluding that RF exposure is capable of causing any adverse biological effects in humans. *Murphy* Decision at 29. For starters, Dr. Israel had no knowledge of the 2016 NTP Report and was unprepared to discuss it.

Equally troubling was Dr. Israel's testimony in the *Kreider* case and in this case, that the IARC classification of RF exposure as a possible carcinogen means "essentially there is no evidence," when IARC uses the phrase "possible" to mean "limited evidence," and he admitted he has "no idea" how IARC uses the classification. *Murphy* Main Brief at 71. ALJ Heep erred in accepting Dr. Israel's obviously incorrect reading of the IARC classifications to mean *no evidence* when it clearly states *limited evidence*, and this was before the 2016 NTP Report was released.

ALJ Heep was also wrong to accept Dr. Israel's testimony that, for each symptom identified by Complainant, he reviewed the medical literature and determined there was no basis to conclude that PECO's smart meters cause, contribute to, or exacerbate any of those symptoms. *Murphy* Decision at 30. Putting aside various flaws in this testimony pointed out to ALJ Heep but not addressed in

the Decision, *Murphy* Main Brief at 50-53, it is irrelevant because there is no requirement of proof of causation, as explained in the next section. The issue for the Commission is whether there is risk of harm, i.e., the potential for harm. Complainant demonstrated the potential or possibility for harm to her from RF exposure, and Dr. Israel's review of the medical literature to supposedly prove the absence of a causal link is irrelevant. As noted, the correct state of science is that there is some evidence of RF exposure causing harm, and that evidence supports a finding of risk.

E. Exception No. 5: The ALJ Erred in Concluding that the Law Required Complainant to Prove Causation of Harm

In her Initial Decision, ALJ Heep erred in implicitly concluding that Complainant was required to prove that RF exposure from PECO's meter would cause, contribute to, or exacerbate her conditions and symptoms. *Murphy* Decision at 32. This conclusion is implicit, because, earlier in the decision, ALJ Heep noted that Complainant and PECO disagree on whether Complainant must prove causation (PECO's position) or instead must prove risk or potential for harm (Complainant's position). *Murphy* Decision at 18-20. ALJ Heep did not explicitly address the issue, but ultimately decided against 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 Dr. Davis and Dr. Israel testified that it would not cause harm. *Id.* at 32.

This was an error because there is no requirement to prove causation of harm to prove that electric service is not safe or reasonable as to Complainant.

Service that *would* cause harm to Complainant obviously would violate Section 1501. But service that *could* cause harm to Complainant just as obviously would violate Section 1501. 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. That could still be true of a 1% risk or even a .001% risk or lower.

This simple explanation illustrates why an agency charged with safety like the Commission should not look at the issue as if this were a tort lawsuit seeking damages. In that case, a plaintiff would have to prove causation of harm to recover damages. But there is no similar requirement under Section 1501 as to Complainant, as was fully explained in the briefs to ALJ Heep, and it would defeat the express language and corresponding legislature intent to engraft such a requirement. *Murphy* Reply Brief at 5-17.

F. Exception No. 6: The ALJ Erred in Concluding that PECO Acted Reasonably in Installing Smart Meters in Accordance with the Act 129 Installation Plan

In her Initial Decision, ALJ Heep erred in concluding that PECO acted reasonably in accordance with the Act 129 Installation Plan approved by the Commission. *Murphy* Decision at 31-32. That is incorrect because nowhere in Act 129, the orders of the Commission, or PECO's tariff is there any requirement that every single customer, including medically sensitive customers, must accept an RF-emitting smart meter. 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 here. There is nothing in the law that mandates this result, and Section 1501 prohibits it as to Complainant.

This point deserves special emphasis. The Commission's prior decision that there is no opt out right under Act 129 does not answer the question whether the General Assembly intended for every single consumer to be forced to accept a smart meter, even if they object based on a doctor's recommendation. There is no evidence that the General Assembly even thought about this issue. Equally important for present purposes, there is no evidence that accommodating the request of a customer like Complainant who presents with a doctor's recommendation that she avoid RF exposure would present an unsurmountable challenge to PECO or any other utility for that matter. What is the rationale for refusing to accommodate customers like Complainant who seek an accommodation based on a doctor's recommendation? The silence on that issue is deafening. The Commission should conclude from that silence that it would be feasible and not unduly burdensome for PECO to accommodate customers like Complainant who object based on a doctor's advice to forced RF exposure by not using smart meters for such customers.

In this case, where the safety of RF exposure is unproven, and questions have been and continue to be raised on the subject (e.g., the NTP report), it is manifestly unreasonable to force RF exposure upon a person like Complainant who objects based on the advice of her doctor. Instead, the reasonable course would

be to offer an accommodation to consumers like Complainant who object based on medical history evidenced by a doctor's recommendation.

G. Exception No. 7: The ALJ Erred in Rejecting Complainant's Argument that Forced RF Exposure Would Violate Due Process

In her Initial Decision, ALJ Heep erred in concluding that mandated exposure to RF-emitting smart meters would not violate due process. *Murphy* Decision at 20-23. With all due respect to ALJ Heep, she erroneously concluded that, because Complainant had an opportunity to be heard in these proceedings there is no due process violation. *Id.*

ALJ Heep confused Complainant's argument, which is a substantive due process claim, with a procedural due process claim. Complainant's argument is that forced RF exposure violates basic principles of respect for bodily integrity and cannot be justified here, regardless of the procedure provided. As the Supreme Court of the United States has noted: "[t]he protections of substantive due process have for the most part been accorded to matters relating to marriage, family, procreation, and the right to bodily integrity." *Albright v. Oliver*, 510 U.S. 266, 272 (1994). *See also In re Cincinnati Radiation Litig.*, 874 F. Supp. 796, 810-11 (S.D. Ohio 1995) (""The right to be free of state-sponsored invasion of a person's bodily integrity is protected by the [constitutional] guarantee of due process."). There is no dispute here that PECO proposes to expose Complainant to RF exposure by means of a smart meter installed on her property. PECO is seeking to mandate that Complainant accept exposure to a microwave device at her home even though she objects and has removed all RF devices. The government simply has no right to

force a citizen to accept RF exposure under these circumstances, i.e., by means of a device installed at Complainant's home. Complainant may have no choice but to accept exposure from cell phones or wifi devices when she goes out into public, but the Commonwealth cannot force Complainant to accept RF exposure by means of a device installed at her property.

Complainant raised this issue in her opening brief and PECO did not address it, nor did ALJ Heep. Complainant's assertion that PECO's forced RF exposure to Complainant on Complainant's property in order to receive electric service violates substantive due process as to her stands unrebutted.

The Commission need not decide this question if it decides that Section 1501 requires an accommodation for a person like Complainant who has raised an objection about smart meter installation based on a medical recommendation of her treating physician. Under governing principles of statutory construction, the Commission should construe the statute so as to avoid any constitutional problems. Pennsylvania Law as set forth in the Statutory Construction Act of 1972 is clear that the General Assembly "does not intend a result that is absurd, impossible of execution, or unreasonable[,]" "and does not intend to violate the Constitution of the United States or of this Commonwealth" 1 Pa. C.S.A. § 1922(1), (3). *See also Snyder Bros. v. Pa. PUC*, 157 A.3d 1018, 1030 (Pa. Commw. Ct. 2017) (citing these provisions in a case of statutory interpretation).

H. Exception No. 8: The ALJ Erred in Ignoring Complainant's Evidence About Her Medical Background and Overriding the Advice of Her Doctor

ALJ Heep noted the Complainant's extensive medical history and circumstances leading up to the realization by Complainant and her doctor that she is highly sensitive to RF exposure. *Murphy* Decision at 9-10, 24-25. The ALJ also noted that, based on his review of the medical circumstances, Complainant's doctor (Peter J. Prociuk, M.D.) advised Complainant to avoid RF exposure from PECO's smart meters. *Id.* at 24. The ALJ noted the extensive efforts that Complainant has taken to avoid RF exposure in her life.[5] *Id.* at 8-9.

While ALJ Heep noted all of this evidence, she failed to give it any weight when she decided that forcing Complainant to accept RF exposure from a smart meter would not violate Section 1501. With all respect, the Commission lacks the authority to override the decision of Complainant and her doctor about her health risks from smart meter exposure. ALJ Heep should have accepted the testimony of Dr. Marino that EHS is a real syndrome and that the advice of treating physicians is paramount as to medical decision making for those who suffer from EHS. Neither the Commission nor PECO and its expert witnesses should be able to substitute their judgment for the judgment of Complainant and her doctor about the health risks of RF exposure for Complainant.

[5] Although not noted in the ALJ's Decision, it is a matter of record that Complainant sought to have the hearings in this matter moved to a location that would be free from RF exposure, and that ALJ Heep denied that request and decided that Complainant did not need to attend the hearings in person, but could participate by phone, which is what Complainant did.

There is no precedent for the Commission to override the judgment of medical professionals. Utility customers who do not pay their bills can submit medical certificates in order to prevent the utility from shutting off their power. See 66 Pa. C.S.A. 1406(f). Neither the utility nor the PUC attempts to second guess the medical judgment of physicians or nurse practitioners who treat non-paying utility customers. The Commission should not permit it here.

This matter was litigated before ALJ Heep simultaneously with two other matters (involving Maria Povacz and Cynthia Randall with her husband Paul Albrecht) that present the same essential issue about whether the Commission can and should override the judgments of the doctors treating these complainants. There are some differences. Ms. Randall presents as someone with a history of cancer who is concerned based on the advice of her doctor about the health risk of radiofrequency electromagnetic energy (RF) exposure from smart meters. Ms. Povacz like Complainant has no history of cancer, but their treating doctors have examined them and diagnosed them with as sensitive to RF exposure. And both of them, like Ms. Randall, avoid RF exposure in everyday life because of concerns for their safety and their doctors' recommendations. Also, with Ms. Randall they share a concern about the health risks of RF exposure, based on their individualized circumstances as presented through the testimony of themselves and their doctors.

Judge Heep dismissed the concerns of both Complainant and Ms. Randall by deferring to the conclusion sponsored by PECO's experts that RF

exposure below FCC limits cannot cause any harm. *Murphy* Decision at 31; *Randall Decision* at 22-23.

In the case of Maria Povacz, however, ALJ Heep stated as follows:

> While there is no showing that EFs from smart meters are causing this problem, and PECO successfully rebutted any such claim, the preponderance of the evidence does suggest that some other aspect of the PECO smart meters is inimitably perceptible by and contrary to the health and well-being of the individual Ms. Povacz.

Povacz Decision at 28. Based on that finding, ALJ Heep ordered that Ms. Povacz can upon request pay for and move her meter socket elsewhere on her property where PECO will attach a smart meter.

While Complainant like Ms. Povacz appreciates the recognition by ALJ Heep that the smart meters had an adverse effect on Ms. Povacz, which is a contributing factor to her doctor's diagnosis of her EHS, ALJ Heep should also have recognized that Complainant's circumstances are essentially the same as Ms. Povacz, in that she and her doctor have concluded that she suffers from EHS. The only difference is that in one case the ALJ accepted the claim and in the other case on similar evidence the ALJ denied the claim.

This was error. As Dr. Marino testified, it is impossible as a practical matter to test for EHS and the treating physicians for Ms. Povacz and Complainant have diagnosed them with EHS based on clinical observations and their medical histories of exposure to RF. The Commission is not well suited to make medical decisions for utility customers and should decline the invitation to override the

medical judgment of their physicians. The ALJ erred in not accepting the recommendations of the treating physicians in all three matters.

IV. CONCLUSION

For the reasons set forth above, Complainant Laura Sunstein Murphy respectfully requests that the Commission grant these Exceptions and issue a Final Order that rejects the ALJ's Interim Decision of March 20, 2018, and orders PECO to grant Complainant's request for an accommodation under Section 1501 by using some means other than an RF-emitting smart meter installed on her property to collect data about electric usage for billing purposes.

Respectfully submitted,

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Dated: May 14, 2018

CERTIFICATE OF SERVICE

I hereby certify that on May 14, 2018, I caused to be served a true and correct copy of the foregoing via email upon the following:

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