Certificate of Service

McKnight vs. PECO, Docket No: C-2017-2621057

November 27, 2018

Dear Secretary Chiavetta,

I submitted a copy of our Exceptions to Mr. Ward Smith today via email (ward.smith@exeloncorp.com) today at 2:32pm and copied Judge Heep (dheep@pa.gov).

Thank you very much,

Alexia McKnight, DVM

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

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

EXCEPTIONS OF COMPLAINANT DRS ALEXIA AND LAWRENCE MCKNIGHT

TO THE INITIAL DECISION OF ADMINISTRATIVE LAW JUDGE DARLENE D. HEEP

ISSUED ON OCTOBER 19, 2018

(Served on October 24, 2018)

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Dated: Nov 27, 2018

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INTRODUCTION

Pursuant to Section § 5.533 of the Commission's regulations, 52 Pa. Code 5.33, Complainants Alexia and Lawrence McKnight hereby submit these Exceptions to the Initial Decision of Administrative Law Judge (ALJ) Darlene D. Heep issued on October 19, 2018.

In her decision, ALJ Heep erred in concluding that PECO's use of any smart meter will not constitute an unsafe and unreasonable service in violation of 66.Pa.CS. § 1501, made several errors in establishing critical facts of the case, and placed unbalanced weights to expert testimony without consideration of relevant surrebutter. She cites several appropriate legal standards but then ignores them by any reasonable entailment from other of parts of her ruling.

The ALJ's initial ruling is internally inconsistent and therefore cannot stand. It presumes mechanisms by which Dr. A. McKnight[1] might have been affected by a stray voltage issue which was not suggested by the evidence, nor was it suggested by any of the experts who testified. Further, assuming the stray voltage theory the ALJ proposes, it would still require that Dr. A. McKnight at least be electrically hypersensitive, which would conflict with the ALJ's conclusion that Dr. A. McKnight does not have electrical hypersensitivity syndrome (EHS). The ALJ concluded this by ignoring the testimony of 3 physicians who stated that Dr. A. McKnight does have this condition and overweighting testimony of PECO's physician who never examined Dr. A. McKnight and stated that he did not know what was causing Dr. A. McKnight's symptoms.

This case concerns a complainant Dr. Alexia McKnight, a Veterinary Doctor who on 2 occasions demonstrated that she could not tolerate the effects of the AMI meter installed on her residence. More than 1000 pages of testimony was collected over a 4-day hearing. Three (3) physicians (inclusive of her husband who is also a physician) testified on Dr. A. McKnight's behalf indicating that the AMI meter caused her harm, and thus that she should avoid exposure to these devices.

Therefore, we, the McKnight's, are seeking relief under 66.Pa.CS. § 1501 whereby Dr. A. McKnight has special circumstance where the AMI meter needs to be avoided *in her case*. We contend that while AMI meters may be safe and reasonable for *some* (even most) people, they have not been proven safe for *all* people inclusive of every biologic variant. And, because there are some unique individuals including Dr. A. McKnight who have different biology where they are electrically hypersensitive and have unusual reactions to electromagnetic fields (EMF), they form a special class of utility customers that need relief.

There is scientific debate over EHS. However, this debate should not be confused as playing a significant role in a legal or regulatory case except to understand that decisions in this area must be made under some degrees of legal or regulatory uncertainty. The ALJ seems to have confused legal interpretations and therefore orders a forced exposure and attempts to justify this by referencing a scientific debate whereby any person or group can generate uncertainty. This violates common sense understandings of what safety means. In cases where it is uncertain if an exposure is safe, it is inherently unreasonable to legally mandate the exposure. Thus, if and where there is scientific debate or reasonable uncertainty, the common sense and legal principle should be error on the side of safety, which in this case is avoid exposure and allow exception to unconditional mandates.

[1] 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.

For clarity, EHS, is sometimes known by other names such as 'microwave sickness', 'electromagnetic field intolerance syndrome' or 'IEI-EMF.' It describes a syndrome (a group of symptoms that consistently occur together) in association with electromagnetic fields. Despite the judge's misinterpretations about how to name it, there should be absolutely no scientific or legal question as to the existence or reality of this syndrome. There are several populations studies from around the globe showing a prevalence of between 1.5% and 10% of the population. No scientific body seriously disputes the fact that such patients exist or that they have real and disabling symptoms. This is recognized by the world health organization. Even PECO Experts agree with this and testified to this fact (Tr. 4/13 at 154:5-6, 285:24-25).

The scientific debate about EHS (or IEI-EMF or microwave syndrome or …) involves 2 major points. The first debate is the degree at which one might formally call an individual as having the syndrome. The second debate is the certainty assigned to proposed etiologic mechanisms involved.

The first debate occurs much like the debate about what blood pressure is sufficiently high enough to call a person as having hypertension. While there are clearly patients with very high blood pressure and there is no question as to this label, there is a fine line where somebody becomes at risk and labeled as 'hypertensive.' Indeed, the values by which hypertension gets labelled differs between expert bodies. For example, Canada has different criteria for Hypertension, and the expert bodies in the US disagree if a person with a systolic blood pressure of 125 should have this label.

By the same token, it is not clear that everybody that states "I get symptoms from my cell phone" can or should be appropriately labelled as having EHS. Some have more symptoms, or more clearly established symptoms. Alternatively, Dr. Rea's study (McKnight exhibit 13) shows that roughly 16% of the larger population self-proclaiming symptoms has demonstrable biologic effects from EMF that can be reliably reproduced in a laboratory setting. So, for example, if legal rulings cannot be made because there is scientific debate over when someone can be labelled as having EHS then the courts would have no way to determine even the most common of diagnoses since it can be easily shown that there is debate over what "hypertension" means or could be applied. It should be noted that Dr. A. McKnight would count under any reasonably accepted threshold since she has classic symptoms *and* underwent blinded provocation to prove the symptoms can be reproduced reliably by EMF exposure. This is the gold standard.

With respect to the second debate about EHS, some scientists (including those paid by PECO) have questioned if there is enough scientific certainty to state that EMF causes a direct biologic effect at 'non-thermal levels' because in many cases the symptoms might be explained as a result of a psychologic phenomenon (a 'nocebo' effect). The nocebo effect theory has been championed by certain Dr. Rubin, a psychologist in the UK who conducted a review of several 'blinded provocation studies.' In that review he reported that many patients cannot tell in blinded provocation studies if they are being exposed to real EMF, or to a sham.

In this setting the world health organization (WHO) has previously stated a preference for the term 'IEI-EMF' to emphasize that the etiologic mechanism of this is *not known* with certainty to be directly related to EMF. However, the WHO statement is more than 12 years old now, and several more recent studies have suggested that it is outdated and needs review.

As outlined in our main brief at page 26, there are several major problems with Dr. Rubin's methodology, and the studies that he based his reviews on have major flaws that he does not properly account for. In sum they are statistically invalid and thus, they neither rule in or rule out biologic or psychologic etiologies. Further, again, Dr. A. McKnight has undergone blinded provocation testing for this condition. So, even if

the studies had validity she would represent the exception, which only changes the prevalence of the disease that can be definitely established as having psychologic etiology ruled out.

For example, there are now other blinded studies showing that some selected people can tell when they are being exposed to very low dose EMF. And a very large body of literature (thousands of studies) showing biologic effects in lab and animal studies at very low ('non-thermal' doses of EMF). Also, there is scant literature that psychotherapy approaches work to help patient with IEI-EMF, where prudent approaches such as simple avoidance of EMF seem logical and well tolerated.

Some incorrectly claim that because of the WHO position paper that the scientific community believes that EMF does not cause the symptoms of EHS. It is not clear if more scientists believe that EHS is caused by idiopathic mechanisms, or directly be EMF because there no way such an opinion poll could ever be reasonably conducted, and a 12-year-old position paper would never form a reasonable assertion that this is a current position in science. Nor would such an opinion polls or appeals to authority be meaningful. For example, in 1960 most physicians did not believe that smoking caused cancer either, and the US government had yet to make any statements (see McKnight Exhibit 11, page 89). It would be easy in 1960 to find some doctor to testify that there was 'no medical basis' to state that cigarettes caused cancer. That opinion poll didn't correlate with the reality of an ongoing epidemic. Or the fact that in retrospect most people agree that was more than sufficient evidence even by 1950 to state the causality link between cigarette smoking and lung cancer.

Currently, many well-respected scientists are now stating that there is enough evidence to say EMF has important non-thermal dose effects because of more recent literature. For example, a 2016 systematic review of more than 100 peer reviewed papers found that 93 confirmed oxidative stress in relation to low dose (non-thermal) EMF – well below the FCC limits (see https://www.ncbi.nlm.nih.gov/pubmed/26151230). The etiologic mechanisms are complicated, but believed to work via a specific protein (a 'calcium channel') changing confirmation abnormally in the presence of EMF pulses (e.g. see https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3780531/). This appears to cause a downstream cascade of events involving oxidative stress and inflammation. There are now dozens of studies showing objective evidence of effects such as EEG changes in humans. These studies show also that the pulsed or burst nature of EMF (like the kind produce in an AMI meter) result in different biologic effects compared with continuous wave EMF and thus are of special concern.

Also, as a response to earlier studies that suggested carcinogenic effects in epidemiology studies of cell phone users, recent large studies have been performed by the NIH. Peer review of this work came back this year and stated that EMF at non-thermal doses *clearly causes* cancer of types highly unusual for the particular animal genotype, and in correlation with the data reported in human epidemiology studies. These are not quack groups. This is the National Institute of Health. And, the study was replicated in Italy showing the same tumor types in the same locations at even lower EMF doses.

Since it now seems clear that non-thermal mechanisms are now clearly involved in the pathways for oxidative stress and cancer, it is highly plausible that they also exist to cause the other more subjective symptoms reported by patients with EHS. This inflammatory pathway is not exactly the same as an 'IgE mediated allergy' but it has enough similarity that safety considerations may be treated the same way. At the very minimum, there is absolutely no scientific certainty that low dose EMF 'safety' has been established anymore. Thus, a mandated EMF exposure has not been established to be a 'safe' practice for all human biology.

Also, as noted, this science debate should not play a significant role in the case of Dr. A. McKnight anyway because we are not attempting to assert a statement about the safety of AMI meters or EMF *in general*. Our case is about an *individual*. Dr. A. McKnight is one of a relatively few that has undergone formal diagnostic testing. She unequivocally has EHS, where the cause is biologically related to EMF. The nocebo has been ruled out in Dr. A. McKnight because she had blinded provocation testing. This test demonstrated that she is clearly sensitive to EMF at several different frequency ranges at dose levels much lower than a normal person could perceive.

We point out in our main brief at page 3 that we are not attempting to assert that AMI meters are unsafe in general and are not attempting to overturn Act 129. Instead we are arguing that there are some people, a small exceptional class, that require special medical considerations.

This matters in our case because the biologic effects appear to depend on a person's genetics, or individual characteristics induced by other environmental exposures. Like most things. Because people are all slightly different. As an analogy, while peanuts may be safe at very high doses for the vast majority of people, the same peanut substance is incredibly unsafe at very low doses for the selected few that have an allergy to peanuts. We do not know all the characteristics or details that lead to a person with a peanut allergy having an adverse reaction. But, normal dosing rules do not apply.

We do not restrict the sale of peanuts and generally deem peanuts 'safe', because they are generally nutritious, many people enjoy them, and it does not cause *most* people them problems. But, such FDA approval does not imply safety has been guaranteed to all people regardless of their differences. We do not force or mandate any peanuts down the throat of a patient who states that they have a history of adverse reactions when exposed to peanuts.

This case is unusual in that while the PUC rules that AMI meters are mandated to 100% compliance without any possible medical exception, it creates a situation of forced exposure of a patient with a known and documented unusual hypersensitivity.

PECO experts disagreed and argued that they saw 'no medical basis to conclude [Dr. A. McKnight has intolerance to EMF]'. However, neither of the PECO experts is an expert in EHS (or IEI-EMF or …) specifically, and neither of them examined the patient. They are therefore not qualified to make such opinions or judgements. Dr. Davis is not a medical doctor and does not have expertise in biology or the effects of disease. Dr. Israel is a Pediatric Oncologist and has never seen nor treated any patients with this syndrome and has never examined Dr. A. McKnight, even if he did have more experience. He specifically testified that he was not an expert in this condition.

Both experts refused to comment on the individual causes of Dr. A. McKnight's symptoms. Their testimony is entirely based on the uncertainty that can be created in a *general case* much like arguing that peanuts can be perfectly safe for *some* people, therefore they do not require regulation because *some* people can tolerate them. This would be a reasonable argument in a situation where there was capacity for a customer to opt out. But, they don't account for the individual sense of safety where it remains appropriate to mandate without exception. In the situation of a *mandate* providing no exceptions, there would need to be absolute certainty that harm *could not* possibly occur. But, there can be no interpretation of the testimony or science that indicates that such certainty was established on the part of the utility. We argue that in a situation where law in creating an unconditional mandated exposure, considerations of product safety need to be considered differently than situations where customers have reasonable opportunity to opt out.

As noted above and more extensively outlined in our main brief, the mechanisms and science by which EMF can cause these human health effects is complicated and nuanced. Our understanding is constantly evolving. But if the ALJ's ordering were accepted, such a ruling would be in direct conflict with Dr. A. McKnight's two treating physicians and explicitly against their recommendations for Dr. A. McKnight to avoid EMF exposure, including AMI meters. Of note, one of those treating physicians is Dr. Prociuk who holds medical license in the commonwealth of Pennsylvania. PECO's expert Dr. Israel does not hold a medical license in this commonwealth. Such a ruling would therefore represent not only an unprecedented forced exposure against a patient will but also against the medical advice of a licensed treating physician based on their detailed history and examination of a patient.

This is problematic because if the Commission accepts the ALJ's initial ruling in this case, it will be asserting that it has better understanding of this science and has better medical expertise than Dr. A. McKnight's physicians. Utilities or utility commissions are ill equipped to determine medical issues such as this since doing so involves highly technical understandings of medicine, biology, and use of appropriate medical judgement. Treating physicians use this clinical judgement to apply the complex medical knowledge to a unique individual accounting for co-occurring illnesses and circumstances. Such a determination cannot be performed without detailed medical exam of the patient. And, among other things, with this responsibility comes with the medical liability to accept the consequence that the Commissions evaluation has overlooked something. For example, a physician is required to accept malpractice responsibility if future events make it clear that they were negligent and could have taken reasonable actions to prevent a future event of harm (e.g. a nodule seen on x-ray that does not get reported where the patient is later is determined to be a preventable cancer if the nodule had been reported).

In the situation where it is mandating EMF exposures of Dr. A. McKnight directly against the 'medical contraindication' of Dr. Prociuk, the Commission would be overriding Dr. Prociuk's medical advice and taking on the role of diagnosis and assignment of appropriate treatments for patients. It therefore would assume the malpractice responsibilities if it assigned an inappropriate treatment or prevented his appropriate treatment in error. The Commission is not licensed to do this and does not have the infrastructure to support this even if it did have a medical license. In short, by accepting the ALJ's initial ruling, the Commission would be attempting to practicing medicine without license and without ever even examining the patient.

Note that this principle would hold true even if the ALJ believed that the causal mechanism is of psychologic origin. Not only is there no evidence to support a psychologic origin in our case, to introduce this as the causal agent the ALJ would have to establish that Dr. Prociuk's presumed mechanism had been definitively ruled out (which was never established), but also further that Dr. Prociuk's therapy of AMI meter avoidance is medically improper for a diagnosis of psychologic origin such that the alternative of mandated exposure is medically *preferable*. Even Dr. Israel refused to offer suggestions on therapy. Further still, the medical ethics of a forced exposure against a competent patient's will would not allow this even if Dr. A. McKnight's symptoms were from a psychologic cause. For example, consider the ethics of forcing a patient with known fear of heights to look over the side of a tall building by holding them *against their will*. Even physicians cannot force patients to have therapy without first establishing that the patient is medically incompetent. The alternative would be considered battery.

Also, the ALJ has proposed that we did establish by preponderance of the evidence that Dr. A. McKnight had adverse effects with one smart meter, but, the ALJ also asserts that despite Dr. A. McKnight's prior bad experiences with smart meters on two separate occasions, Dr. A. McKnight would tolerate *any* other smart meter without effects. Her ruling appears to indicate she might think that it was a fluke. But, how

did she conclude that with certainty? Importantly, the ALJ makes this assertion without any further investigation or query into how or why such a sentinel event could have occurred.

And, beyond our case, there is at least one other case of Maria Povacz C-2015-2475023 where the ALJ has determined that a smart meter was found to exacerbate health effects, and many more where others have claimed they were harmed or fear they will be harmed. And, even while the medical evidence is less strongly demonstrated in these other cases, the other cases may be seen in different light given that now at least two individuals have established credible sentinel events.

The Commission should therefore reject the ALJ's suggestion that PECO may use "ANY smart meter" or determine individual patient safety considerations by hiring experts to read from a script and opine about how they think might be safe for that individual. The Commission should also reject the ALJ's assertion that Dr. A. McKnight does not suffer from EHS. To date, neither PECO, nor the Commission have performed any serious investigation into how two separate specific 'smart meters' have now been implicated in causing two separate individuals - Dr. A. McKnight and Mrs. Povacz - to have adverse health effects.

LEGAL STANDARDS

In other similar and pending cases the ALJ and or the Commission have ruled that there is no exception or 'opt out' to smart meter installation. In Murphy vs PECO C-2015-2475726, Murphy argues how unusual Pennsylvania is in stating this since in other states objection have been limited to the appropriate for the opt out programs when the consideration is for health issues. In other states there is no question about if an opt out should exist for health issues, since it is so obvious that such exceptions should occur. For example, the North Carolina Utility Commission recently concluded that opt-outs for health reasons should be cost free, citing

> *"DEC asserted, and the Public Staff agreed, that those customers who opt out should pay the incremental cost of that decision. DEC demonstrated that its proposed charges of a one-time fee of $150 followed by $11.75 per month were based on reasonable estimates of its actual incremental costs. However, the Commission is not convinced that DEC's proposal for recovering those costs would be fair to those consumers who maintain that they must avoid to the extent possible exposure to RF emissions due to impacts on their health. DEC and the Public Staff correctly stated that the FCC, not the Commission, is the appropriate regulatory body to address the health impacts of RF emissions. The Commission is aware that the FCC's exposure guidelines were last updated in 1996 and that the FCC has had an open docket on the question of biological impacts from exposure to those radio frequency waves that fall in the range of 300 Hz to 100 GHz since 2013.[2] DEC's smart meters operate within that range, at 900 MHz; thus, the Company's decision to deploy smart meters was made in the context of this uncertain regulatory environment. "*
> *(https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=412f8225-7c72-4917-9364-25a8a4da9e12 at 14, emphasis added)*

[2] See the FCC's website at https://www.fcc.gov/general/radio-frequency-safety-0 for more information

Apparently, only in Pennsylvania is the situation so different in that instead of arguing about the fairness of $11.75/month or no charge, we are instructed that there is not even possibility for relief at all unless proof of harm has been demonstrated.

Murphy also argued that a 'complaint' about a safety risk should not require the same proof burden as other cases where tort may be involved, or where historical events can be traced. We agree with Murphy that such a burden to consider a safety issue is 'arbitrary and capricious.'

Nonetheless, because of the Commissions prior decisions and rulings we attempted in this complaint to meet higher proof burden because in our case historical events of harm did occur.

And, the ALJ ruled that we *did* provide the preponderance of evidence of these historical events of harm.

But the ALJ now changes the rules. The standard is now increased such that in order to seek relief from the Commission we must go beyond showing that a specific meter caused harm in the past, but now also show also that *any and all* AMI meters in the future will cause harm, and if we can't show that higher burden then *any and all* AMI meters in the future are by de-facto presumed safe. Even showing Dr. A. McKnight's prior track record of two recorded events of harm, and even having three licensed and practicing physicians testify to likelihood of future harm with similar conditions, and even in the ALJ's own court room where AMI meters have already caused adverse effects in other customers – even with all this it is somehow not sufficient to meet the 'preponderance of evidence' that there can be risk for a future event from "any AMI meter."

By way of analogy, we feel this is like asking a complainant not only to show that the fire occurred and therefore a fire extinguisher would be reasonable, but further that fire extinguishers are explicitly prohibited unless there is demonstrable proof that the fire *is actively burning*. And, as soon as the fire extinguisher has put out the fire, the fire extinguisher must be returned until such a time as another active fire has been proven. All fires are by default judged to be idiopathic, but further there can never be investigation into fires. Using the ALJ's logic, if the science shows that causes of fires are *sometimes* unknown, then the cause of *any* fire is unknown.

In no way can this meet a legal standard of 66.Pa.CS. § 1501 and mean 'reasonable and safe.' It is inherently unreasonable to expect a different outcome by doing the same actions without any clarity about why Landis + Gyr meter #127832547 and *any* other AMI meter that PECO might elect to use are significantly different in a way that was responsible for the effects seen with Landis + Gyr meter #127832547.

EXCEPTIONS

Exception No. 1: The ALJ erred in statement that there is insufficient evidence to conclude PECO's use of any smart meter will constitute unsafe or unreasonable service in violation of 66.Pa.CS. § 1501

The ALJ uses inconsistent and incompatible reasoning when she concludes both

> *"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.CS. § 1501 …"*

And at the same time

> *"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.CS. § 1501 …"*

Logic dictates that since the Landis + Gyr meter #127832547 *itself* is a smart meter, it cannot be that PECO's use of *any* smart meter can be justified. The evidence cannot be both sufficiently supported and insufficiently supported regarding Landis + Gyr meter #127832547. The ALJ's first order implies that at least 1 'smart meter' that is not safe or reasonable for Dr. A. McKnight.

Perhaps the ALJ is attempting to suggest that there might be *some other* (e.g. incorrect use of the word "any") smart meter that is safe for Dr. A. McKnight. However, the ALJ does not specify any characteristics of a proposed alternative smart meter that will differentiate it from Landis + Gyr meter #127832547. Also, she has not specified any causal mechanism for Landis + Gyr meter #127832547 that would be avoided such that this mechanism could be used to judge *which* other smart meter would be safe by avoidance of that causal mechanism. Without specific clarity over what specifically caused Landis + Gyr meter #127832547 to cause harm in Dr. A. McKnight or how the proposed alternative meter specifically addresses that causal mechanism, it is pure speculation on the part of the ALJ that *some other* smart meter has fixed the issue.

Thus, without further qualification, allowance of *any* other smart meter just because the meter number or manufacturer is different unquestionably qualifies as 'unreasonable' service. If there is sufficient evidence that meter #127832547 will cause adverse effects, and is therefore unsafe, and thus ordered that it cannot be reinstalled, then a ruling to allow another meter with the exactly the same characteristics represents endorsement of an established, blatantly unsafe service for Dr. A. McKnight that has proven in court to cause adverse effects (aka harm).

Further the order specifically stipulates not only that PECO shall not reinstall Landis + Gyr meter #127832547, but that PECO shall investigate and correct stray voltage issues at the McKnight household. This is bizarre since the McKnight's testified that the stray voltage issue was related only in the context of why the meter #127832547 was on and off the house, who did the work, and to clarify that PECO had strange voids in their records regarding their repeated presence at the McKnight residence. We testified that our complaint is otherwise unrelated to the stray voltage issue and that this issue has been resolved (Complainant main brief at 6:19, Tr. 4/10 at 19:10, 43:9-11, PECO Cross McKnight, Exhibit 2).

The ALJ's inclusion of the stray voltage issue is significant because it is suggestive that the ALJ believes that there is a causal mechanism. She appears to believe that the stray voltage, or perhaps stray voltage in conjunction with Landis + Gyr meter #127832547 was involved. This specific theory is countered explicitly by specific testimony that Dr. A. McKnight's symptoms improved significantly during the interim period of May 24, 2016 through Sept 9, 2016 where meter #127832547 was removed, *but the stray voltage problem was still there* (Tr. 4/10 at 12:24-5). The ALJ theory does not explain exacerbation of Dr. A. McKnight symptoms when meter #127832547 was reinstalled on Sept 9, 2016 (Tr. 4/10 at 13:10-17) where the stray voltage issue did not change. Nor does it explain the resolution in Dr. A. McKnight's symptoms again on November 1, 2016 in conjunction with meter #127832547 was finally removed (Tr. 4/10 at 15:8-9). The ALJ's stray voltage theory here is not supported by the evidence and was not postulated by any expert on either side to be related to the cause of Dr. A. McKnight's symptoms. Meter #127832547 was clearly involved somehow.

However, for either Landis + Gyr meter #127832547 or stray voltage to cause some effect in Dr. A. McKnight's body, some transmission mechanism between the meter or wires conducting the stray voltage and Dr. A. McKnight's physical body must have occurred. There is no testimony of Dr. A. McKnight touching wires in relationship to her symptoms. So, the only mechanisms possible for a stray voltage to be involved would be that the stray voltage created an electromagnetic field effect around the household wires and Dr. A. McKnight's body was able to detect that field effect because she was electrically hypersensitive. Dr. L. McKnight living in the same space did not feel these effects so there must be something unique about Dr. A. McKnight's biology that differentiated her to get adverse effects.

If meter #127832547 with or without a stray voltage issue cause 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.

And, even if the mechanism by which meter #127832547 caused adverse effects in Dr. A. McKnight was not EMF, but instead some random other unidentified and unmentioned mechanism, the ruling leaves no clarity that the unidentified other mechanism would be sufficiently addressed through her orders, or that AMI meter avoidance would not be medically justified.

Also, if the stray voltage was mechanistically involved as an interaction effect between the smart meter and the stray voltage then the specific interaction between stray voltage and ALL other smart meters must be verified, since there is no reason to believe that the other smart meters differ from meter #127832547 in any significant way. For example, assuming that the mechanism involves some form of EMF as we testified, then beyond just verifying that stray voltage was resolved, the logical entailment would be that PECO would be additionally required to ensure at least that the new meter did not interact with stray voltage in any way by doing *field studies* at the McKnight household (e.g. to ensure that no voltage transients are occurring as a result of conducted emissions from faulty power supply design or from secondary antenna effects due to the proximity of the *new* AMI meter antenna to nearby wiring).

Importantly, if EMF is *not* suspected and no alternative mechanism is proposed that can be addressed, then the logical entailment is that PECO would be additionally required to verify that the stray voltage + meter issue combination was solved by testing independent of any mechanisms. The only way to do this is to verify that *Dr. A. McKnight did not get any symptoms* after the stray voltage issue was felt solved *and after the new AMI meter was installed*. Without knowing which intermediate mechanisms are involved, then the only valid way to show the effect will not happen again is to check and see based on the final outcome.

Further, since this later test might fail where by Dr. A. McKnight might have new symptoms with another new AMI meter, PECO would be required to continually iterate by trying different AMI meters until *some* AMI meter was found that was guaranteed not to cause Dr. A. McKnight's adverse effects. This repeated testing of random AMI meters until established that one can be found would be considered a form of human experimentation, and thus bring with it the associated ethical concerns, including but not limited to the requirement for informed consent, and choice of the human participant to drop out (e.g. http://www.who.int/ethics/research/en/). But, none of this was ordered. The ethics themselves imply that an 'opt out' is required.

So, the ALJ is inconsistent and incomplete in her logic. The ALJ can only conclude that Dr. A. McKnight cannot possibly be harmed by *any* smart meter if she also believed that meter #127832547 never caused harm. By extension, she can only believe this if she believes Dr. A. McKnight never had physical symptoms. Her rational for stating this, would require ignoring PECO's expert testimony that indicated believe that

Dr. A. McKnight's symptoms were real, and also require that PECO has provided the certainty that it is *demonstrably impossible* for any human (no matter how sensitive, or what their biology might be) to ever be harmed this way. If all that were true (and it's clearly not) then, there would also be no need to even consider ordering investigation into stray voltage or preventing Landis + Gyr meter #127832547, since neither order would be expected accomplish anything.

But, the ALJ knows that PECO *did not* establish that this is impossible, and the ALJ cannot deny the events Dr. A. McKnight claims that strongly support the proximal involvement of Landis + Gyr meter #127832547. So instead, the ALJ also states that preponderance of evidence shows that Dr. A. McKnight was adversely affected by meter #127832547 (+/- stray voltage issues). And, she therefore orders meter #127832547 prohibited and stray voltage investigation. This demonstrates that the ALJ believes that it is *not impossible* for the events to occur and that there is a preponderance of evidence that situations *did* occur for Dr. A. McKnight. Therefore, it must be possible that *some* humans (e.g. Dr. A. McKnight) might be exquisitely sensitive to EMF, and thus some relief by action is required by the Commission with respect to meter #127832547 and/or stray voltage.

Even more startling is the ALJ's logic that Dr. A. McKnight's symptoms might be limited to explicitly only one meter #127832547. This is inconsistent with her prior ruling on Povacz C-2015-2475023 where she ruled that a *separate* meter caused adverse health effects in yet another individual further supporting the case that *some* humans (e.g. Mrs. Povacz in addition to Dr. A. McKnight) can be exquisitely sensitive to EMF and thus require some relief by the Commission. The ALJ ordered that Mrs. Povacz's said 'smart meter' should be moved. Moving the meter in the Povacz case can only make logical sense if the ALJ felt that that a move would accomplish some protection for Mrs. Povacz. The rational is that extra distance would reduce Mrs. Povacz's EMF exposure. If EMF was not involved in Mrs. Povacz's case, then how could the ALJ conclude that a move of the meter could accomplish any relief?

The ALJ's ruling simply does not explain how she can understand at least two individuals have provided the predominance of evidence that they were adversely affected from smart meters, and that these events occurred from two separate meters (where at least one without any known co-occuring stray voltage issue) but conclude that the problem was limited to an isolated meter #127832547 and thus "*any* smart meter" can be assumed safe for Dr. A. McKnight. This makes no sense.

We argue that the stated events in Dr. A. McKnight obviously *did* occur in association with smart meter installations, and because they did occur it demonstrates that Dr. A. McKnight's unusual biology does exist, that there is something about AMI meters that interacts with her unusual biology, and therefore requested relief action by the Commission. Multiple physicians have reviewed and concur. And, even ignoring expert testimony from Dr. Rea and admission of medical controversies, the medical science all indicates that this is entirely *possible* and closer evaluation suggests it is very consistent with what is currently known about the biologic effects of EMF at low doses. And, even with presumption that EMF is not the cause but it is instead some unknown mechanisms or psychologic etiology, the recommended therapy of avoidance is reasonable, while a mandated exposure known to cause harm is not.

We established this because significant risk is implied by the two prior events where installation of a smart meter caused Dr. A. McKnight to experience adverse health effects. We argue that we need relief from the Commission because PECO has a responsibility for Dr. A. McKnight's safety but refused to take any appropriate action to address the significant probability that Dr. A. McKnight will suffer a similar event in the future without some corrective measures that address her unusual biology. A jumper plate and billing estimation clearly works but is not desirable as a long term solution. An analog meter is presumed safe

because it eliminates the known potential sources of the problem as identified by Dr. A. McKnight's physicians, and Dr. Rea testified that he has seen this work in other similar patients he has seen. But, otherwise it would be a matter of human experimentation to determine what part caused the issue (e.g. was it the switch mode power supply; or the FLEXNET radio; or was it some interaction via a secondary antenna effect; or was it something else). Human experimentation requires informed consent, and Dr. A. McKnight is not keen on volunteering at this point because it might involve further harm or pain if it failed. She has the ethical right to not participate.

We remain open to any ideas or solutions so long as they fully address our primary concern of EMF exposure in a person who is exquisitely sensitive, and don't unfairly burden us with thousands of dollars in expenses to support a research study without reasonable guarantee of success and normal ethical principles for a study participant to not participate or to quit. For example, we note that Act 129 makes no requirement of referencing switch mode power supply or use of a radio in its definition of a AMI meter, so if *some other smart meter* means one that does not have those components (e.g. a fiberoptic solution with power supply that has been verified to not cause significant transients or harmonics) can be found, we would be open to a careful trial of that solution. But proposal for some other smart meter with either an ungrounded and unfiltered switch mode power supply or a radio as were present on the smart meter that made Dr. A. McKnight ill on two occasions does not address the safety concern of an EMF sensitive individual.

We still feel that the easiest and best solution is to simply install an old fashion analog meter and find a mutually agreeable method of capturing usage data appropriately so that it can be used for billing purposes. The number of people that will be doing this is small, and so there will be minimal impact to the rest of PECO's grid structure. The grid infrastructure clearly works if there are a handful of houses that don't have AMI meters.

Exception No. 2: The ALJ erred by not following the applicable law that she cites.

Exception No. 2a: The ALJ erred by not following the rule of burden shifting

The ALJ cites *Replogle v. Pennsylvania Electric Company*, 54 Pa. PUC 528 (1980), and *Waldron v. Philadelphia Electric Company*, 54 Pa. PUC 98 (1980) in stating the if the utility rebuts a complainant's evidence, the burden shifts back to the complainant, who must rebut the utilities evidence by a preponderance of evidence. This explains that the burden of going forward with evidence may shift from one party to another.

However, while the ALJ accepts that burden may shift back to the complainant after PECO's rebuttal, the ALJ erred because she makes no mention anywhere of our extensive surrebutter to PECO's testimony, or the additional evidence we provided that shifted the burden back onto PECO. The surrebuttal arguments are completely ignored.

As one example of many, the ALJ unquestionably accepts Dr. Israel's opinion against three (3) other physician testimonies. But, on cross examination, it became clear that Dr. Israel has never seen any patients with this condition, has never written any papers on this topic, has no specialized training in this area, and has never examined Dr. A. McKnight (In contrast, Dr. Rea has published extensively in this area and has treated hundreds to thousands of patients with this condition and did personally evaluate Dr. A. McKnight). Additionally, on cross examination it became clear that Dr. Israel could not cite even basic information from the articles he reportedly read about the topic and was significantly confused about the timing of events in Dr. A. McKnight's history. Dr. Israel himself even testified "It would be just totally

inappropriate for me to try to make a suggestion for what [Dr. L. McKnight] should do [regarding Dr. A. McKnight's condition]" because he has never even examined Dr. A. McKnight and knows so little about her history (Tr. 4/13 231:12-14). If the burden had shifted because Dr. Israel had made an opinion it's simply not clear how the ALJ ignored the major problems with his testimony that became apparent in cross examination and as detailed in our main brief (page 28 section 6.2.2.4) and reply brief (page 47, secton 3.3.8).

The ALJ similarly quotes Dr. Davis' testimony extensively, ignoring his near complete lack of training in biology or understanding in relevant biologic concepts such as how cellular processes work. She makes no comment on the pervasive concern we raised in our main brief about mistakes in his computational methodology, and our concern about the fact that Dr. Davis did not properly account for the 'burst' effects and therefore inappropriately used meaningless averaged values. Most importantly she makes no accounting for the fact that Dr. Davis could never make a statement about the safety of individuals that have different biologic responses in diseased states (much the way a person stating the 'safe' dose of salt cannot apply the same safety standard to a person with an heart failure, that the 'safe' dose of sugar applies the same way to a person with diabetes, that the safe dose of Tylenol applies to a person with liver failure, or that 'safe' dose of penicillin applies to a person with an allergy).

Our Main brief has extensive listing of the problems with the PECO key expert testimonies beginning on page 28 and extending through page 50. These 22 pages include countless references to explicit testimony and cross examination as well as exhibits and official artifacts that establish major flaws and misinterpretations in PECO's expert testimony opinions. Yet not a single word of this surrebutter is mentioned by the ALJ. It is hard to fathom that she could not find a single argument or concern listed in these pages even remotely noteworthy to discuss much less accept. This suggests either she did not read our briefs or, at minimum did not give them proper consideration.

Exception No. 2b: The ALJ erred by not following prior Commission rulings

The ALJ quotes the commission as stating "the ALJ's role … will be to determine based on the record in this particular case, whether there is sufficient evidence to support a finding that the Complainant was adversely affected by the smart meter or whether use of a smart meter will constitute unsafe or unreasonable service…" She also quotes the commission stating "The EDC must exercise reasonable care to reduce hazards to which customers may be subjected to by reason of the EDC's provision…"

In this case the ALJ ruled that there was a predominance of evidence that a specific smart meter Landis + Gyr meter #127832547 adversely affected Dr. A. McKnight, and therefore that this particular meter is ordered not to be reinstalled. Despite this she provided no clarity how the EDC should take action and investigate what characteristics of Landis + Gyr meter #127832547 caused problems for Dr. A. McKnight. Without understanding which characteristics are responsible for the one meter for causing adverse effects it is not possible to ensure that some other meter does not possess the same problem.

And, again, ALJ Heep ruled that another meter caused symptoms for Mrs. Povacz. So, even by her own rulings and not including any other literature or cases (of which there are many), two sentinel events have occurred where the ALJ was convinced that the customers have had their health adversely affected in strong temporal correlation with AMI meter installations. Despite her knowledge of this, she has failed to order any reasonable *preventative* measures or order any serious investigation into how or why this might have occurred. This ruling therefore represents a failure to exercise care that a reasonably prudent person would exercise. In other words, this is negligence.

There is no way to reconcile this ruling with a Commission statement reading "The EDC must exercise reasonable care to reduce hazards" as referenced in the ALJ's initial decision on page 17. The ALJ failed in her duty to prevent this situation from occurring again, for us or for any other customer in situations similar to us.

Exception No 3: The ALJ erred in establishing basic testimony facts.

Exception No 3a: The ALJ erred in factual dates of meter #127832547 removal and reinstallation, along with the accepted dates of the stray voltage issue.

Perhaps adding to her confusion over stay voltage involvement in findings of fact #24, the ALJ asserts that "At some point in April or May of 2016 the AMI meter was reinstalled at the service address." This contradicts the testimony and accepted exhibits of both the McKnight's and PECO that state that the meter was removed (not reinstalled) on May 24, 2016 (PECO cross Exhibit 2).

Similarly, in findings of fact #25, the ALJ asserts "The stray voltage issued continued through April and May of 2016" While technically true (it did 'continue') this wording suggests that the stray voltage issue might have been resolved sometime around May of 2016. The accepted testimony on both sides agreed that the stray voltage issue was not resolved until mid 2017.

The ALJ does reach correct conclusions about the cardiovascular timing in her discussion, but the findings of facts above should be corrected or omitted since they are factually inaccurate or misleading.

Exception No. 3b: The ALJ erred in factual statement over Dr. Rea's disclosure statements.

The ALJ lists in findings of fact #42 that to receive the treatments of Dr. Rea, Dr. A. McKnight was required to sign disclosures stating that his treatments were "not endorsed, sanctioned, or supported by the Texas Medical Board" (TMB). She later states that these the board does did not endorse his treatment of EHS.

The TMB never made such a statement. While Dr. A. McKnight did sign a disclosure, this is misleading and ultimately incorrect because the treatments listed by the Mediated Order are unrelated to the diagnosis and treatments for EHS. The full history behind this was presented as a late exhibit explaining this issue. (http://www.puc.state.pa.us//pcdocs/1566866.pdf), and further discussed in our reply brief at page 13 (section 2.6), and page 41 (section 3.3.5). The mediated order specifically *allowed* Dr. Rea to continue practice as usual with exception of a specific treatment that is *unrelated to EHS*. And, even for that unrelated treatment the order did not prevent Dr. Rea from continued use of it as long as he explained the rational to his patients. If the mediated order concerned Dr. Rea's medical judgment on all diagnosis and therapy, it power to fully revoke his medical license. But it didn't.

Exception No. 3c: The ALJ erred in factual statement of PECO Exhibit GP-13

In findings of fact #62, the ALJ asserts that PECO used a Rush Track 7000 Power Quality Meter to measure transients (voltage spikes outside the norm) and waveforms at the service address. PECO Exhibit GP-13.

This exhibit was given special late filing surrebutter (see http://www.puc.state.pa.us//pc docs/1567065.pdf). As outlined on page 54 of our main brief, this exhibit was reviewed and is completely uninterpretable because PECO apparently used the device incorrectly to measure 'current' not 'voltage'. Mr. Pritchard admitted under cross examination that he did not know how to interpret this exhibit or correlate it with voltage spikes or transients. GP-13 make no statement about voltage at all, and no expert on either side could explain how it might be different had a smart meter been present or not. No expert on either side could relate GP-13 in any way to the testimony or exhibits given by Mr. Bathgate.

Exception No. 3d: The ALJ erred in factual statement that the AMI meters comply with FCC regulations.

The ALJ records this as findings of Fact # 69. This fact is contested as outlined on page 55 of our main brief (section 6.2.4.2.5). Mr. Pritchard testified that the meters are operating at 2 watts based on manufacturer specification, but then provided FCC licenses that allow for 1.2762 watts, 1.3212 watts, and 1 watt depending on the specific AMI meter model. Based on this, either Mr. Pritchard gave false testimony, or the AMI meters are in fact not compliant with PECO's FCC license. At best, it was not factually determined that the AMI meters "comply with FCC regulations".

We further dispute that the AMI meters comply with other FCC regulations about conducted emissions as discussed in our main brief at page 58 (section 6.2.4.3.1).

Exception No. 3e: The ALJ erred in factual statement that the only functional differences between AMR meters and AMI meters is the periodicity of the radio transmissions, the remote connect/disconnect on the AMI meter, and the fact that some AMI meters have a capacitor pump rather than switch mode power supply.

The ALJ records this as findings of fact #70. It is true that Mr. Pritchard made a similar comment, however he also later clarified that the AMI meter broadcasts at twice the output power than the AMR meter (Tr. 4/12 at 150:12, 154:25, 211:24-25). The AMI meter transmits 4-5 times farther (Tr. 4/12 at 213:21-25).

The higher output power of the AMI meter is highly significant as outlined in our main brief page 45 (section 6.2.2.5.7) because a biologic system does not average short bursts of energy over long periods of time as calculated by Dr. Davis.

Exception No. 3f: The ALJ erred in factual statement that the PECO AMI system has fewer radio transmission than any other utility system, including the ability to "tune down" the number of transmissions from each AMI meter.

The ALJ records this as finding of Fact #74. This is point is addressed in our main brief on page 56 (section 6.2.4.2.7). Mr. Pritchard clarified his statement that the meters can also "tune up" the number of transmissions and that this process is highly automated and done remotely where issues such as topography can play important roles. Mr. Pritchard testified that no field testing has been done to validate that the meter actually 'tune down' to the levels he expects. It is thus speculation, not fact, that transmission have been reduced. Further, it is clearly untrue that other utilities don't' have fewer radio transmissions since there are other utilities that don't have any radio transmission or use smart meters at all because they have opt-outs, or use alternative transmission methods such as fiber optics (e.g. see https://www.smartgrid.gov/files/EPB_Project_Description.pdf)

Exception No. 3g: The ALJ erred in factual statement that the FCC has stated that exposures below MPE levels "do not cause health effects".

The ALJ records this as Findings of Fact #78. This topic is addressed extensively on pages 44-47 of our main brief (section 6.2.2.5.5) The FCC never makes such a statement, and in fact has an open issue on this subject since 2013 (see https://www.fcc.gov/general/radio-frequency-safety-0). The FCC MPE levels and the ANSI/IEEE standards from which they were derived never state the words 'does not cause'. Our main brief references the original artifacts from the FCC. The FCC does make statements such as 'to date, no evidence of powerful biologic effects' but unambiguously never state 'does not cause' because instead ANSI explicitly reported studies that showed health effects in animals far below the proposed at the time

MPE levels. The question in the FCC documents is not 'if they cause' but rather 'how significant' the effects are and if they need extra regulation. The ANSI documents from which the MPE was derived specifically mention that they do not contain all the factors that could be of importance. Furthermore, released this year there are now two huge peer reviewed animal studies (the NTP study and Ramazzini Institute study) that have called for explicit re-evaluation of these limits because they are no longer felt to be protective even for the general populous.

Of significant note is that none of these studies would properly account for a disease state like EHS because the documented prevalence of EHS is too low. The animal studies referenced by the FCC are not statistically powered for detection of specific diseased states in a subpopulation such as hypersensitive individuals. The principle of guidelines not applying to disease states is true of many diseases. For example, the dietary guidelines for salt do not apply to a patient that has congestive heart failure. Such recommendations also do not apply to a situations of a mandated long term exposure.

Exception No. 3h: The ALJ erred in factual statement that radio frequency transmissions from PECO's AMI meters are many times lower than FCC or ICNIRP standards.

The ALJ records these as findings of fact #79 through 83. This topic is addressed on pages 47-49 (section 6.2.2.5.7-8). Dr. Davis's computations are speculative that have never been verified in the field and are irrelevant to the way biologic systems work (section 6.2.2.5.4). His stated comparisons do not even match the mathematical methods prescribed by the FCC lists (Dr. Davis averages over more than 30 minutes, where the FCC limits allow up to 30 minutes for averaging.). They do not properly account for effects of pulsed or burst energy. Also, they do not account for anything other than a hypothetical antenna, and thus do not include the real antenna radiation patterns, or secondary antenna effects, or local field effects in real objects. They do not account for Mr. Bathgate's observation that the AMI meters might be transmitting far more frequently in the system automation a meter might 'tune up' instead of 'tune down'.

Dr. Davis provides no evidence of his work that can be externally validated or checked. And his numbers vary widely to the point of incompatible comparison rates between testimony. Working his math in our case he compared 9 minutes of cell phone use to 3 months of AMI meter exposure (1-minute of cell phone to 14,600 minutes of AMI meter exposure), but in other testimony he compared 7 minutes of cell phone use to 107 years of AMI meter exposure (1-minute cell phone to 8,034,171 minutes of AMI meter exposure), and in yet another testimony he compared 109 minutes of cell phone use to 1480 years of AMI meter exposure(1 minute of cell phone to 7,269,981 minutes of AMI meter exposure). See section 5.2.2.5.9. In other words, in different cases he testifies to numbers that are 500 fold different. His computations are just not reliable.

Finally, even if the meters are within FCC and ICNIRP limits, it is irrelevant in a case that involves individual biologic variation. The FCC and ICNIRP never declare that they have accounted for all human biology and specifically reference documents that warn against this mis-interpretation.

Exception No. 3i: The ALJ erred in factual statement that radio frequency exposures from PECO's AMI meters are less than from PECO's previously used AMR meters.

The ALJ records this a finding of fact #84. This statement is presumably derived from an assumption where an AMI meter is hypothesized to transmit/burst less frequently and in shorter bursts than the AMR meter. However, this ignores how a biologic system responds to short bursts of RF energy (see our main brief section 6.2.2.5.4).

It also ignores the fact that Mr. Pritchard testified that the transmission power of the AMI meter is twice that of the AMR meter because it needs to transmit significantly farther (Tr. 4/12 at 150:12, 154:25, 213:15-25, GP-3, GP-5).

Finally, as pointed out in our main brief at page 47 (section 6.2.2.5.7) the computations which PECO used are computed from assumption about normal operation and were not verified by field tests. If meters are malfunctioning by transmitting more frequently than expected, or by generating unintended secondary antenna effects, then the computations do not hold. Mr. Bathgate further testified to field measurements that suggest this is indeed the case.

PECO, not only never rebutted Mr. Bathgate's testimony that Field measurements are critical because they often differ substantially from theoretic computed values (Tr. 4/11 at 376:13-19) they instead testified that they have never done field testing (Tr. 4/12 at 246:6-10). Other than exhibit GP-13, PECO never provided a single quantifiable value that was measured in the field, and GP-13 was deemed uninterpretable because it was incorrectly performed. Even PECO experts could not interpret the results or state what it meant.

Exception No. 3j: The ALJ erred in factual statement that PECO AMI meters are not subject to conducted emission standards because those standards apply to unlicensed transmitters.

The ALJ records this as finding of fact # 85. This is contested, and likely not true. No evidence was given to support this assertion, our expert disagreed, and our review of the FCC regulations cannot find any evidence to support PECO's assertion. This is discussed in our main brief at page 58 (section 6.2.4.3.1)

Exception No. 3k: The ALJ erred in factual statement the Lamech study is based on a population that self-identified as having EHS.

This is not true. The Lamech study included a question about EHS, but stated "Interestingly, the vast majority of Victorian cases *did not* state that they had been sufferers of EHS, prior to the exposure to the wireless meter." It listed that only 8% considered themselves to be suffering from EHS. See our reply brief page 19 Regarding PPFF 197.

Exception No. 4: The ALJ erred in placing inappropriate weight and/or inappropriate review of expert testimony.

The ALJ gives significant weight to PECO expert testimony, while inexplicably ignoring expert and surrebuttal testimony of the McKnight's experts or cross examination.

Exception No. 4a: The ALJ erred in placing weight on medical expert testimony of Dr. Israel and ignored testimony of the other three physicians.

For example, the ALJ finds in her findings of fact #92 that Dr. Israel stated an opinion 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 any health condition or any symptoms or medical concerns reported by Mrs. McKnight." She repeats this in her discussion on page 27. Ignoring the ALJ's slight mis-quotation of Dr. Israel, Dr. Israel did make a similar opinion.

However, if Dr. Israel's opinion statement can be considered a finding of fact, then similarly there are parallel findings of fact from other physicians that need to be stated. For example, Dr. L. McKnight stated an expert medical opinion. Dr. L. McKnight stated that in his expert medical opinion it is beyond

reasonable medical certainty that the AMI meter was causal for Dr. A. McKnight's symptom exacerbation (Tr. 4/10 at 138:7-17, main brief page 8).

Similarly, Dr. Prociuk stated an expert medical opinion that should be considered a finding of fact. Dr. Prociuk stated in his expert medical opinion it is beyond a reasonable degree of medical certainty that another AMI meter will cause an exacerbation of Alexia's symptoms and specifically cause another cardiac arrhythmia. (Tr. 4/11 at 256:17-23). He stated that he used the words 'medically contraindicated' because they were the most unequivocal words he knew (Tr. 4/11 at 309:4-22).

Similarly, Dr. Rea stated an expert medical opinion that should be considered a finding of fact. Dr. Rea stated that beyond reasonable medical certainty the smart meter is what caused the change in Alexia's health, and specifically was the cause for her arrhythmia (Tr. 4/12 at 74:4-18). He also testified that another smart meter would be unsafe for her (Tr. 4/12 at 75:12-16). He also stated that he had seen this same issue in other patients (Tr. 4/12 at 74:2-4).

The ALJ's discussion about Dr. Rea's opinion was left out entirely except in passing mention that Dr. Israel questioned his treatment, and that PECO introduced evidence that medical boards had questioned his medical treatments.

Again, the issue of Dr. Rea's medical board orders is discussed at length in our late filing on the subject (see http:/www.puc.state.pa.us//pcdocs/1566866.pdf), and in our reply brief on page 40-43. The ALJ quotes incorrectly that the Texas Medical Board (TMB) made any statement about Dr. Rea's treatment of EHS. Instead there was a mediated order was that stated that Dr. Rea would specifically be allowed to practice as before, with exception that he needed to provide informed consent for one treatment that is unrelated to EHS.

That Dr. Israel disagreed with Dr. Rea's treatment is discussed in our main brief at page 34-35. It is a result of Dr. Israel missing important details of symptom timing in Dr. A. McKnight's case. Because Dr. Israel never examined Dr. A. McKnight, and only briefly looked at her records, he became confused to the event sequences, as the ALJ rightly points out on page 19. Dr. Rea did examine Dr. A. McKnight, and made appropriate decisions based on the events that were occurring at that time.

As a minor quibble, the ALJ also erred in noting on page 26 that Dr. Israel 'is' a "medical doctor … at Dartmouth Medical School." Dr. Israel does not practice anymore (Tr. 4/13 at 229:16-17) and is no longer at Dartmouth because he was asked to step down (https://www.vnews.com/Former-Director-of-Norris-Cotton-Cancer-Center-Takes-New-Post-as-Lawsuit-Against-Dartmouth-Hitchcock-Moves-to-Arbitration-14840601).

In sum, there is nothing that should give Dr. Israel's testimony more credibility than the three other physicians that disagreed with him on this subject. But there is significant reason to discount the rational basis by which he made his opinions.

On page 26, the ALJ states "Dr. Israel has extensively reviewed the literature, studies, and reports regarding health and electromagnetic fields. Those studies show that IEI, EHS (sic) and the variety of symptoms attributed to it are not caused by radio frequency fields."

But, she fails to note that Dr. L. McKnight testified to the significant problems with the literature cited by Dr. Israel, and further misquotes the cited literature. No part of the literature cited ever states "symptoms *are not caused* by radio frequency fields." At best some articles do claim "this study *does not provide evidence* that symptoms are caused by EMF" (e.g. some studies state that the relationship is uncertain, but no study states a certainty that such a relationship between EHS and EMF is negated or established

to not exist). But, as Dr. L. McKnight explained in his testimony, these studies were not designed properly to statistically detect the effects. And, they have significant flaws such as extraordinarily high dropout rates that make the results completely uninterpretable or invalid. As pointed out in our main brief at page 31 (section 6.2.2.4.3) Dr. Israel did not follow standard best practices when he did his literature reviews. For example, one study Dr. Israel cited had 7 of 20 patients drop out, and all 7 patients dropping out stated complaint of pain during EMF exposure arms, while no patient dropped out of the sham arm. The study reported '*does not provide evidence*' however this study is invalid because those 7 patients were not properly accounted for and probably would have provided evidence if those patients had completed the study. Dr. Israel's citation most certainly does not support a hypothesis that 'EHS is not caused by EMF.'

On cross examination, Dr. Israel's working knowledge of the medical literature on this topic was demonstrably weak. During his direct examination Dr. Israel literally read from piece of paper while his attorney reviewed a rehearsed set of questions! So, when Dr. L. McKnight cross examined Dr. Israel regarding the papers Dr. Israel cited himself as references (because Dr. McKnight actually did read these papers), it became clear that Dr. Israel did not apply standard techniques of medical review for the papers he reportedly read, and Dr. Israel couldn't remember any details about them (see main brief at page 31-33, section 6.2.2.4.3).

The ALJ quotes on page 27 "Based on his extensive knowledge regarding the research, Dr. Israel's expert opinion is…" However, as pointed out in our main brief at page 29 (Section 6.2.2.4.2) Dr. Israel is not an expert in this area. Dr. Israel stated directly "I did not say that I was an expert in EHS or IEI, because I haven't treated any patients"(Tr. 4/13c at 193:13-15). Dr. Israel is a Pediatric oncologist. He has never written a single article, book or paper on the subject of EHS or IEI-EMF (Tr. 4/13 at 183:8-10), while Dr. Rea has written many (Tr. 4/12 at 57:8-15). Although he admits the syndrome exists (Tr. 4/13 at 285:24-25) Dr. Israel has never seen or treated a single patient for this syndrome (Tr. 4/13 at 183:5-7). Dr. Rea has seen more than 1000 patients with this syndrome (Tr. 4/12 57:6). Dr. Israel never examined Dr. A. McKnight, and only worked from superficial review of medical records (where he became confused to the event dates). When asked what he would recommend to a patient with IEI-EMF, Dr. Israel testified "I haven't thought about it" (Tr.4/13 at 230:14-21). How can the ALJ conclude "based on extensive knowledge of the research" when Dr. Israel testified that he had not even *thought* about what he might say to a patient with this condition, stated directly that he was not an expert, and barely knew any detail of any study he cited?

Furthermore, Dr. Prociuk and Dr. L. McKnight have at least witnessed real patients with this syndrome and have given thought to 'what they might say to a patient.' But at best, Dr. Israel's expertise in this area would be similar to Dr. Prociuk or Dr. L. McKnight, as basing general medical knowledge, and opinion after some review of the medical literature.

It is just not clear how the weight the opinion of Dr. Israel is so heavily weighted while completely ignoring the input of the other 3 physicians' opinions, particularly since Dr. Rea has so much more experience in this area. And, even if Dr. Rea's testimony was questioned because of misinterpretation of the Texas Medical Board order, it does not explain why the ALJ would hold Dr. Israel's opinion as outweighing the testimony of Dr. L. McKnight and Dr. Prociuk.

Dr. Israel's himself including testimony that he had no idea what was causing Dr. A. McKnight's symptoms (Tr. 4/13 at 239:4-7) and that it would be inappropriate for him to make treatment suggestions (Tr. 4/13 at 246:12-14) and he hasn't even thought about what he might state to a patient like Dr. A. McKnight (Tr.

4/13 at 230:14-21). It's one thing for Dr. Israel at the counsel of a legal team to *state* "I have extensive knowledge regarding the research" and another to *demonstrate* an "extensive knowledge regarding the research" and how it applies to particular patients. Dr. Israel might have done the former, but certainly did not do the later. The ALJ did not consider this distinction.

Exception No. 4b: The ALJ erred in placing weight on scientific expert testimony of Dr. Davis in a case of individual safety.

Similarly, the ALJ extensively quotes from Dr. Davis. While she does note in passing that the McKnight's noted objection that Dr. Davis does not have training in Biology, she ignores the reasons why the McKnight's have concern about this. The ALJ never questions the extensive inconsistencies in his testimony, or why his misunderstanding of biology might be relevant for the kinds of statements he made. This is discussed extensively in or main brief on pages 36-44 (section 6.2.2.5.3).

Importantly, Dr. Davis is not a physician. He cannot make any valid statement of 'dosing' for an individual that has a disease state. Thus, at best, Dr. Davis could only ever state that a normal healthy animal would or would not be affected by EMF based on his calculations. Dr. Davis cannot possibly be qualified to know how dosing affects a person with a disease unless he had more medical background and understanding of how biology works (see our main brief at page 47 section 6.2.2.5.7-8). His testimony cannot rebut our testimony because he only talks in the general (e.g. average population) sense, where our case is about an individual.

Statements about individuals are different than statements about populations. As an analogy of the difference, using Dr. Davis' arguments to make a statement about Dr. A. McKnight is similar to stating Bill Gates income is 'not possible' because a study showed that the average income was $59,000 and given a normal distribution with a standard deviation of $19,000 the chance that that Bill Gates' $4 billion income was highly improbable. Despite arguments about the study's misuse of statistics (income does not follow a normal distribution, nor do many biologic variables), a conclusion that Bill Gates income is improbable may well be true. But, if the question is what the individual income is of Bill Gates, and Bill Gates showed his tax returns, the study is irrelevant. In other words, we don't need it because it was only attempting to a probability of an individual when we already had the definitive answer for that individual. Such a study on average incomes cannot rebut the individual tax return. By the same token, Dr. Davis' references to what EMF dose an 'average' person or animal might detect, cannot rebut an individual testimony of a person stating that they are not average and have demonstrated in blinded testing that they can reliably detect EMF at lower doses.

Additionally, Dr. Davis seems to make several math mistakes and grossly exaggerate value comparisons as discussed further in our main brief. Dr. Davis computed his values by incorrectly averaging short powerful bursts of energy over extended periods of time based on misinterpretation of the FCC guidance that uses this averaging method for continuous waveform energy. This can make any values seem trivially small, however it ignores the reality that biologic organisms do not average powerful bursts in the same way.

As an analogy, the average energy delivered by a bullet as shot from a gun. Because a gunshot causes a bullet to deliver all its energy over a fraction of a second, most people recognize that a bullet can easily penetrate tissues and cause significant damage. However, if the energy from that same bullet is averaged over 30 minutes, you would divide the energy by about 1.5 million times, and the 'average energy' of the bullet makes it look harmless. In fact, the bullet would be harmless if the bullet was going so slow as to take the entire 30 minutes to deliver the change in velocity and thus transmit its kinetic energy.

The same principle is true of the 70ms burst of RF energy delivered by a smart meter. The same reason that Dr. Pritchard testified that the AMI meters RF signal can be detected by antennas more than two miles away is the same reason biologic organisms can feel it when they are only a few feet away. It's the instantaneous power that matters. It's why a 1-watt AMR is less problematic than a 2-watt AMI meter. The averaging over 30 minutes or 4 hours only applies to biology when the power is delivered at roughly the same rate for the entire time averaging period. It applies to TV or FM radio stations because these are continuously delivered. It does not apply to a cell phone or AMI meter because these deliver in short powerful bursts. Dr. Davis' lack of knowledge or consideration of this basic biologic fact completely invalidates all his computations and comparisons.

Exception No. 4c: The ALJ erred in weighing Mr. Bathgate's testimony against Mr. Pritchard and Dr. Davis.

On page 25 the ALJ notes that Dr. Davis rebutted Mr. Bathgate's testimony, and that Dr. Davis used "expensive, high quality equipment" (Tr. 4/13 at 53:1-2). But, on cross examination, Dr. Davis could not give any details of exactly what he did, and a report when asked to see those details, PECO refused to offer this, even if given a chance (Tr. 4/13 at 149:4-16). The testimony made it clear that Dr. Davis's experiment was under highly questionable circumstances and could not be validated. Not a single graph or quantifiable value was reported. There was no description of methods, nor even a single detail given about what reference baseline testing was performed, or even what the equipment make and models were. All we know about this study is that it was done on "expensive" (a subjective assessment on the part of Dr. Davis) equipment, at a 'friends' house. For the ALJ to accept this testimony is therefore giving the utility license to make statements without any consideration to opposing argument *or even an opportunity* to provide relevant surrebutter.

Alternatively, with respect to the specific testimony where Dr. Davis described the 'expensive high-quality equipment' as rebuttal to Mr. Bathgate, this discussion was regarding conducted emission voltage transients. For this, Mr. Bathgate showed his experimental procedures, preconditions and baseline testing, described the make and model equipment. In most cases, Mr. Bathgate repeated his experiments several times, provided graphical outputs with quantified values, and all of this was added to the evidence for all to see. Dr. Davis did none of this. And, again, even when offered chance to provide specifics such that it might be critiqued, PECO declined.

Similarly, Mr. Pritchard did not significantly rebut the testimony of Mr. Bathgate. The ALJ notes in her decision on page 22 that he provided exhibit GP-11 as the certificates of authorization from the FCC. While it is true that he provided these, as noted in our main brief on page 56 (section 6.2.4.2.5) the ALJ fails to notice that the certificates state values that indicate that the meters are out of compliance if the rest of PECO's testimony is to be accepted. The power output testified by Mr. Pritchard exceeds the values given on GP-11.

On page 23, the ALJ writes that Mr. Pritchard disputed Mr. Bathgate regarding transients of the AMI meter, and states that he testified that "transients exist regardless of the type of meter used." However, the ALJ failed to consider that a statement 'transients *exist* regardless' does not have the same meaning as 'transients *have the same magnitude* regardless.' Mr. Bathgate never testified that the transients do not exist, he argued that the magnitude of the transients was dramatically different and showed graphs that indicated a quantified value of 1200 times increased. To use the ALJ's logic is analogous to stating that there exists *a distance* between the Harrisburg Court House and the Susquehanna River, and

therefore concluding that there is also *a distance* to the Mississippi River, thus it should be 'walkable in less than an hour.' The magnitude matters!

The ALJ indicates that Mr. Pritchard rebutted the notion of a secondary antenna effect because he found the meter readings of the HF35C unreliable. However, as pointed out in our main brief at page 59(section 6.2.4.3.2), the logic Mr. Pritchard used (that the device might have been in the near field, and therefore measured incorrectly) was actually rebutted by Dr. Davis. Further, as discussed in our main brief at page 56 (section 6.2.4.2.7) Mr. Pritchard described what *he concluded* was that the HF35C being unreliable, but he never actually verified if it was the HF35C reading incorrectly or if instead it was that the AMI meters were behaving in an unanticipated way. Instead, Mr. Pritchard actually testified to system operation that can cause the exact kinds of behavioral effects Mr. Bathgate described (albeit as a different named protocol than Mr. Bathgate stated). Mr. Pritchard described how the system can 'tune down' the number of transmissions, but also described how it could *also* 'tune up' the number of transmissions. PECO keeps no logs of this, and never performed any field testing so by PECO's admission it is at best unclear what the periodicity of transmission bursts is. And, at least according to Mr. Bathgate, the only quantified measurements they are observed far more frequently than anticipated by design. Also, by Mr. Pritchard's own testimony he noted occasionally that near the AMI meters it 'pegged the HF35C continuously' (Tr. 4/12 at 190:9-11). This leaves Mr. Pritchard's *interpretation* that the HF35C might have been wrong, but he did not qualify or describe exactly why or how the HF35C was unreliable. For the measurement purpose (described in our main brief the purpose of signal timing is unaffected by the extensive discussion about distance to source), there actually there is no reason why the HF35C measurement values is to be doubted, and further Mr. Pritchard never verified the source with another device, and Mr. Bathgate's testimony that he repeated the experiment at larger distances with the same observed timing. Finally, Mr. Bathgate gave additional testimony that he also verified that the transmission frequency at 901MHz with a spectrum analyzer (Tr. 4/11 at 450:20-23) as proof that the AMI meter was the source. And Mr. Pritchard agreed that this would indeed be an indication that the AMI meter was the source of the signal (Tr. 4/12 at 243:1-3).

Further, with respect to secondary antenna effects, even if Mr. Pritchard conducted his own testing using the HF35C on a known location of power cables, it does not matter because the same pre-conditions may not have been present where Mr. Bathgate tested. There are many reasons why Mr. Pritchard's experiment might have yielded different results including the fact that the meter box design might be somewhat different such that the distance between the grounding wires causes the effect in some cases, but not all cases. Again, no details or quantified values of Mr. Pritchard's experiment were provided by PECO such that they could be validated.

Neither Mr. Pritchard nor Dr. Davis directly stated that the secondary antenna effect was not possible, only that they did not see it. But, as with Bill Gates tax return analogy, the fact that PECO looked trivially and did not see something does not rebut an expert witness that stated that they did experimentally see the observed the effect on several occasions (Tr. 4/11 at 391:1-3)

In sum, the ALJ misinterpreted the expert testimony placing unsubstantiated PECO opinions ahead of the factual evidence base.

Exception No. 5: The ALJ erred in conclusion that substantial evidence does not support a finding that Dr. A. McKnight suffers from EHS that would be negatively affected or worsen if any AMI meter is installed.

The ALJ asserts on page 19, and later on page 27 that "the evidence does not support a finding … that Mrs. McKnight suffers from EHS..." 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.

Although he isn't qualified to opine on medical conditions, and has very limited knowledge of biology, Dr. Davis testified that he believes that people with EHS have real symptoms (Tr. 4/13 at 154:5-6). He did not ever state that Dr. A. McKnight's symptoms were not real or that she did not suffer, nor did he even state that she would not worsen with another AMI meter. Dr. Davis didn't think that there was sufficient evidence that symptoms were *caused* by EMF. But, even if caused by something other than EMF, nobody in the scientific community seriously doubts that these patients are suffering, or that the symptoms appear in association with EMF.

Although he never examined Dr. A. McKnight, Dr. Israel testified also that he believed that people with EHS have real symptoms (Tr. 4/13 at 285:24-25). But, he also testified that he did not know what caused Dr. A. McKnight symptoms (Tr. 4/239:4-7), and that he was not an expert in this area because he has never seen any patients with this syndrome.

Three (3) physicians testified explicitly that another AMI meter will cause exacerbation of Dr. A. McKnight's symptoms, and that another AMI meter will cause her to have further exacerbation of symptoms, and that the AMI meter was 'but for' causal beyond a reasonable degree of medical certainty.

Dr. Prociuk stated explicit concern that another smart meter will cause Dr. A. McKnight to have symptom exacerbation and more cardiac arrhythmias (Tr. 4/11 at 256:17-23). He expressed that his concern is related to the EMF from the smart meter (Tr. 4/11 at 312:3-5).

On page 20, the ALJ points out that Dr. Prociuk was not recognized as an expert in EHS. However, she fails to point out that neither was Dr. Israel. She argues on page 27 that the medical community has not accepted EHS as a condition. Further, on page 22 she quotes that Dr. Prociuk as stating that EHS has not reached the level of being a formal diagnosis, and that there is no diagnostic test for EHS. If Dr. Prociuk was not an expert in EHS, then he can't be quoted as making this judgment. And, as discussed in our main brief on page 17 not being a 'formal diagnosis' does not matter, because the ALJ completely misunderstands what Dr. Prociuk was referring to when he talks about a 'diagnosis'.

A diagnosis can take on multiple labels. For example, Dr. Israel, and Davis like to use the term "IEI-EMF" while Dr. Rea prefers "EHS." But, the CDC recently requires different diagnostic codes (ICD codes) of "W90.0XXS - Exposure to radiofrequency, sequela" recently changed from the definition of T66 "radiation sickness", they previously explicitly commented that T66 means

> *"The effects of ionizing <u>and nonionizing</u> radiation upon living organisms, organs and tissues, and their constituents, and upon physiologic processes. It includes the effect of irradiation on food, drugs, and chemicals."(emphasis added).*

Dr. Prociuk's comment is taken out of context because he is referring to the fact that for medical billing the condition is labelled differently and hasn't been labeled as either EHS or IEI-EMF. Dr. Prociuk never indicated at all that Dr. A. McKnight did not have EHS. Instead, he indicated that her symptoms were

entirely consistent with EHS (Tr. 4/11 at 29:6-14) and felt that the AMI meter was "injurious to her health and should be avoided at all costs." (Tr. 4/11 at 30:3-12)

Similarly, the ALJ quotes Dr. Prociuk that stated that there are no diagnostic tests. She misunderstands medical diagnosis. In fact, there is no diagnostic test for Migraine headaches, either. Would she argue that because there is no diagnostic test, that people do not suffer from Migraine headaches? Would she require lab evidence of Migraines before she would accept that people suffer?

In fact, the only person recognized as an expert in EHS in our case was Dr. Rea. A fact that the ALJ omits.

Dr. Rea stated that Dr. A. McKnight clearly suffers from a biologically unusual sensitivity to EMF (Tr. 4/12 at 68:7), and that he specifically considered and ruled out alternative etiologies such as a psychologic effect or nocebo (Tr. 4/12 at 69:1-6). As did Dr. L. McKnight (Tr. 4/10 at 124:16-20). Dr. Rea performed blinded provocation studies to prove without doubt that Dr. A. McKnight suffers from EHS (Tr. 4/12 at 60:12-14, 67:6-17) and specifically that her symptoms are caused by biologic EMF effects.

The ALJ is not a physician and is not qualified to assign diagnoses and make assertion that Dr. A. McKnight "does not suffer from EHS" or frankly from any disease. As to 'suffering,' Dr. A. McKnight describes this as 'It was horrible' (Tr. 4/10 at 10:20), and "disabling" (Tr. 4/10 at 16:1). And as to disease assignment, three physicians stated unequivocally that Dr. A. McKnight is has this condition, because among other things Dr. Rea did a full examination including blinded provocation to prove her unusual biologic response. The only rebuttal from PECO was from Dr. Israel. Again, Dr. Israel testified that he's not an expert in this area (Tr. 4/13c at 193:13-15), he has never published any articles on this topic (Tr. 4/13 at 183:8-10); never even seen a single patient with this condition (Tr. 4/13 at 183:5-7); testified that he has never even thought about what he would say to a patient with this condition (Tr. 4/13 at 230:14-21). Dr. Israel stated uncertainty in his position, where three other physicians were certain. Dr. Israel stated that he didn't know what is causing Dr. A. McKnight's symptoms (Tr. 4/13 at 239:4-7); and admitted "It would be just totally inappropriate for me to try to make a suggestion for what [Dr. L. McKnight] should do [concerning Dr. A. McKnight's condition]" because "I've never even examined you or your wife." (Tr. 4/13 at 231:12-14).

Also, to the degree that Dr. Israel differed in his opinion, it was not to the issue of 'suffering from this condition.' He stated uncertainty to disease label assignment but wrote in his report that Dr. A. McKnight's symptoms were 'consistent with' IEI-EMF.

Of note, the labels IEI-EMF and EHS (thus the difference in opinions between Dr. Israel's pre-filed report wording stating, 'consistent with IEI-EMF' and 'Dr. Rea's formal diagnosis of EHS) differs only in certainty over etiologic mechanisms, where IEI-EMF expresses uncertainty that the etiologic mechanism might not be EMF, but instead is possibly explained by nocebo effects, and EHS states certainty over mechanism via EMF. Dr. McKnight and Dr. Rea made definitive statements that they did not suspect a nocebo etiology in Dr. A. McKnight, while Dr. Israel refused to state that nocebo effects were the etiologic mechanism. So, it cannot be said that the weight of evidence for EHS was rebutted to all this anything else but EHS.

And, in all accepted testimony, it is clear that Dr. A. McKnight's symptoms had strong temporal association with Landis + Gyr meter #127832547 installations on two separate occasions. So, even under assumption that the etiologic mechanism did not involve EMF, the complaint still holds that PECO has not found any other more likely etiology, nor addressed any other mechanism that might solve the problem. Nor have they explained what therapy might work better than simple AMI meter avoidance as Dr. A. McKnight's physicians have testified. They still have not addressed the underlying etiologic mechanism by which an AMI meter could have caused Dr. A. McKnight's (or Mrs. Povacz's) symptoms in such tight temporal

association, nor what treatment might work better for her. PECO is therefore still negligent in attempts to ensure any future events do not occur and are still actively blocking a reasonable action of Dr. A. McKnight's physicians' advised attempts to avoidance of a known proximal cause – regardless of EMF causality.

Exception No. 6: The ALJ erred in concluding that a person does not sustain his or her burden of proof in an electric and magnetic field exposure when the record evidence taken as a whole lead to the ultimate finding and conclusion that the scientific studies at present are inconclusive.

This is referenced in the ALJ Conclusions of Law #5. The ALJ erred because the reference given has not been established by a rule making process but was only in a Letter of Notification. As discussed in our main brief on pages 15-21, using this as a conclusion of law means that the law has declaration that can definitively decide and set precedent based on the limited amount of science understood and presented in the court room. If, as in this case, experts disagree that the science is inconclusive (Dr. Rea believes it conclusive based on reading the "thousands of studies now" and seeing more than 1000 patients with EHS, while Dr. Israel believes it inconclusive based on reading a 12 year old report by the WHO), then it is unclear if the science is 'settled' or not. However, some parts of the science are more conclusive than others so one side may always argue that the 'science is inconclusive' because some small part is inconclusive or that some part has not be adequately studied and confuse that with the larger body of science that is unquestioned.

The ALJ also erred here because cases of health and safety need to be treated differently than cases involving economic matters with respect to thresholds of uncertainty. When health or safety issues are involved and compared to economic gains or losses, there necessarily needs to be a way to assign a health or safety consequence to an economic value. This affects the threshold of scientific uncertainty that a judge is willing to risk in order to ensure fairness between two parties.

The ALJ ruling works with a starting assumption that all things are presumed safe, and things are unsafe only after they have been demonstrated. This strongly favors allowing unsafe practices. By contrast, in situations where human harm can occur, systems in a 'culture of safety' are generally considered unsafe by default and deemed safe only after safety is proven, so that events can only occur under the strict conditions that ensure the safe operation. Safe systems are designed to so that if something breaks, it "fails to safety". For example, a new medication is not assumed safe by default, even if it is closely related to another medication. Instead a drug manufacturer must establish medication safety through a series of studies before it is approved for use. Even after approval, careful post marketing event tracking must be done. Safety cultures will therefore generally attempt to understand the risk consequences when balancing a decision regarding safety events.

To understand this principle, consider this example. Suppose that the scientific evidence is uncertain whether or not a small crack in the landing gear could send a flying piece into the planes fuel tank and making the plane explode in flames. Suppose that because there have only been a few case reports of failures occurring, experts guess that there is a 97% chance that the part will not cause issues. A complainant states "yes, but there is a 3% chance of crashing and killing everyone on board – I think the part should be fixed before taking off." But the defendant stated "Look, you are overstating things. It isn't clear that everyone is going to die. Experts say there is 97% chance of landing successfully without anybody getting injured." By preponderance of evidence a judge could then conclude that plane will not crash, and the ruling would be to leave the part broken. But, a rational person would recognize the folly.

The problem is that the consequence of a course of action in one direction leads to a minor inconvenience of a flight delay or expense to the airline, while another course of action might have a severely bad result of killing many innocent people. These outcomes should not be equally weighted. Therefore, rational people take the more precautionary approach of fixing the part 'just in case'.

The ALJ argues that where there is uncertainty in science, then a complainant must demonstrate that science has resolved all uncertainty before any action can be taken. This might make sense if the matters resolved are of equal economic gain or loss. But, if the issue in science is a matter of health and safety and is only 'pretty sure unsafe', then the ALJ's logic will allow the unsafe practice to continue until science states 'certainly unsafe.' That approach is incorrect because it weighs an outcome of human harm equally with economic interests.

And, to the extent that the medical experts in this case feel that the science is certain enough to make decisions for Dr. A. McKnight, three physicians testified that there is enough evidence to establish her diagnosis and take appropriate action, and only PECO's witness was uncertain and offered no action to resolve. Again, the uncertain expert (Dr. Israel) never even examined the patient. And, he testified that his is not an expert in this condition, where Dr. Rea was recognized as an expert. And, Dr. Israel also does not hold a Pennsylvania medical license, where Dr. Prociuk and Dr. L. McKnight do.

Finally, in this case we did actually show preponderance of evidence that such an exposure has caused an adverse health effect in Dr. A. McKnight. And, Mrs. Povacz did the same. So, the available evidence in the court room is that at least SOME people are being harmed. It is no longer a matter of 'is science sure'. There are court documented cases of people being harmed. So, it should not matter if science is sure or not. Most rational people would evaluate this and conclude 'why not be safe?' What economic gain is worth causing innocent people harm – regardless of the cause?

Thus, if there is any uncertainty in science that AMI meters can be associated with adverse effects one only needs to look at the cases the ALJ has already seen. It should be concluded that science has not sufficiently established the AMI meters to be safe for any and all humans regardless of their biology. Thus, the AMI program itself should demonstrate by preponderance of evidence that they are meeting section 1501 and providing safe service or provide some method by which exceptions can be handled.

Note that this is exactly the logic the North Carolina Utility Commission took when they noted that the FCC had 'regulatory uncertainty' and thus ruled that it would not be fair to charge for opt-outs in situations where it involved concern about health.

Exception No. 7: The ALJ erred in allowing admitting PECO *pro-hac-vice* representation *nunc-pro-tunc* after the record was closed.

As outlined in our reply brief (page 20, section 3.2), the ALJ erred in allowing out of state legal representation without *pro-hac-vice*, by accepting this *nunc-pro-tunc* more than three (3) months after testimony was heard. PECO filed this motion on July 16, 2018. This is well beyond reasonable time periods and after parts of the record were closed since some testimony was shared with the case of Janette Bachman (Docket # C-2017-2623504 closed June 25, 2018). The Bachman case was closed before this application was even submitted by PECO. Further, the ALJ's order regarding the *pro-hac-vice* decisions was dated August 17, 2018, weeks after our record was officially closed on July 26, 2018 (as noted in the ALJ initial decision on page 3). Thus, when our record was officially closed, the legal grounds for Dr. Davis' and Dr. Israel's testimony had not been established.

CONCLUSION

For the reasons set forth above, the Complainants Alexia McKnight and Lawrence McKnight respectfully request that the Commission grant these Exceptions and issue a Final Order that rejects the ALJ's Initial Decision Dated October 19, 2018 (served October 24, 2018) and order that PECO grant the Complainant's request for accommodation under Section 1501 by using an analog meter to collect electric usage for billing purposes.

Respectfully submitted,

Alexia Lawrence McKnight

Lawrence Kenneth McKnight

Dated: November 27, 2018