331 Shady Ridge Drive
Monroeville, PA 15146

January 9, 2017

Via Paper Filing

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

RE: **Michele Hriadil and Francis Hriadil v. Duquesne Light Company**
Docket No. C-2016-2571726

Dear Secretary Chiavetta:

Enclosed please find our written response to the Answer and New Matter to Formal Complaint of Respondent Duquesne Light Company along with 7 Exhibits referenced in our written response. It has been submitted in accordance with the agreed upon deadline of January 11, 2017.

A copy of this document has been served upon the Respondent's Counsel, Jeremy V Farrell, Esquire, in accordance with Commission regulations.

Please feel free to contact me if you have any questions.

Sincerely,

Francis Hriadil

Francis Hriadil
Complainant
(412) 779-3314
hriadil@attglobal.net

Enclosure

Cc: Jeremy V Farrell, Esquire, Counsel for Duquesne Light Company (with enclosure)

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MICHELE HRIADIL and
FRANCIS HRIADIL,

Complainant,

vs.

DUQUESNE LIGHT COMPANY,

Respondent.

No: C-2016-2571726

Complainants Response to

ANSWER AND NEW MATTER TO FORMAL COMPLAINT

Filed by Michele and Francis Hriadil

hriadil@attglobal.net
(412) 779-3314
331 Shady Ridge Drive
Monroeville, PA 15146

COMPLAINANTS RESPONSE to ANSWER AND NEW MATTER TO FORMAL COMPLAINT

TO: RESPONDENT'S GENERAL COUNSEL, JEREMY V FARRELL, ESQUIRE, AND LAUREN N RULLI, ESQUIRE .

HERE IS THE FILING OF OUR WRITTEN RESPONSE TO THE ANSWER AND NEW MATTER OF RESPONDENT DUQUESNE LIGHT COMPANY. 7 EXHIBITS REFERENCED IN OUR RESPONSE HAVE BEEN SUPPLIED AS WELL. THEY HAVE BEEN SUBMITTED TO YOU PER THE AGREED UPON DEADLINE OF JANUARY 11, 2017.

Francis Hriadil
January 9, 2017

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

MICHELE HRIADIL and FRANCIS HRIADIL,	:	
Complainant,	:	
vs.	:	No: C-2016-2571726
DUQUESNE LIGHT COMPANY,	:	
Respondent.	:	

Complainants Response to

ANSWER AND NEW MATTER TO FORMAL COMPLAINT

TO THE HONORABLE COMMISSION:

We have read the Answer and New Matter to Formal Complaint of the Respondent's Counsel, Jeremy V Farrell, in its entirety and have the following responses and exceptions:

Overall: The content of the Respondent's Answer and New Matter to our Formal Complaint does not provide much new material beyond their filed Original Preliminary Objections to Formal Complaint of November 4, 2016 and their filed Corrected Preliminary Objection to Formal Complaint of December 6, 2016, even considering the New Matter they have submitted. So, for the most part, it is a restatement of their Preliminary Objections. The Complainants (we) have already addressed all of those statements and assertions, many of which are incorrect and inaccurate, point-by-point and in turn, in our Responses to both of their Preliminary Objections filings, and provided Exhibits and Supporting Documents, most of which are part of the public record, that substantiate our Responses and our Formal Complaint. Be that as it may, the Complainants (we) will address these points again here-in as they are raised. Beyond this restated Preliminary Objections material, in the Respondent's

Answer and New Matter to our Formal Complaint, the Respondent's Counsel puts forth a history (i.e. "background") of our Formal Complaint and our communications with Duquesne Light that is not completely accurate, and we will address, correct, and clarify that history.

1. - 3. DLC Counsel's statements: 1. through 3.

Complainants (Our) Response:

No Response is necessary.

DLC Counsel's statements:

4. (1) Duquesne Light denies all material allegations in the Complaint unless specifically admitted. For the reasons set forth below and in Duquesne Light's Preliminary Objections, Complainants -- who have not yet had a smart meter installed at the service address -- may not opt out of Duquesne Light's smart meter program. Duquesne Light is required by state law to install smart meters throughout its service territory, which includes Complainants' residence. Duquesne Light further denies that a smart meter would have an adverse impact on Complainants' health, safety, or privacy.

(2) Pursuant to Act 129 of 2008, Duquesne Light is in the process of upgrading its metering infrastructure. As part of this upgrade, Duquesne Light will replace approximately 600,000 existing electric meters with new, digital models throughout its service territory.[1] These smart meters allow two-way communication between the meter and Duquesne Light via a secure wireless network. Duquesne Light has also added policies to its Tariff relating to its smart meter program. Copies of the pertinent pages of Duquesne Light's Tariff are attached as Exhibit A.

(F) [1] The AMI Program offers various benefits to Duquesne Light's customers. Some of the initial benefits include: online tools that provide access to customer's electric usage information 24/7 and help customers discover ways to manage their bills as well as email or phone alerts designed to reduce high bill surprises and help customers manage high usage activity. In the future, the program will also provide outage alerts and restoration of service estimates to help customers plan during emergencies and also provide an optional Time-of-use program that may provide benefits to customers who can shift portions of their power to non-peak hours.

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(3) With respect to Complainants' concerns about the radio frequency ("RF") of its new smart meters, Duquesne Light states that the Company's smart meters, like its traditional analog meters, utilize low-energy RF waves to transmit electricity, but transmit RF waves for only short periods every day. Furthermore, the Federal Communications Commission ("FCC") has established safe limits for RF exposure and the RF exposure for Duquesne Light's smart meters is well below the limits set by the FCC. In fact, according to a study completed by the California Council of Service and Technology, smart meters, when installed and maintained properly, result in lower

RF emission than most common household electronic items, such as cell phones, microwaves, wireless internet, baby monitors, and garage door openers. The World Health Organization has similarly concluded that no adverse health effects have been demonstrated to result from exposure to low-level RF. A copy of Duquesne Light's promotional brochure titled "Understanding Radio Frequency and Your New Meter" that discusses these matters is attached as Exhibit B. In light of the foregoing, Duquesne Light denies that the installation of a smart meter at the Property would endanger the health or wellbeing of Complainants

(4) Duquesne Light also denies that its smart meters pose a safety hazard, as alleged in the Complaint. To the contrary, the meters purchased by Duquesne Light have been tested and found to meet all accuracy, safety, and reliability standards by the American National Standards Institute (ANSI).

(5) By way of background, Complainant Michele Hriadil established service in her name at 331 Shady Ridge Drive, Monroeville, Pennsylvania 15146 (the "Property") on July 31, 1989, Duquesne Light notified Complainants via letter dated August 1, 2016, and a voicemail message on September 24, 2016, that the Company planned to install a smart meter at the Property. Complainants subsequently contacted Duquesne Light to indicate that they did not want a smart meter to be installed at the Property due to perceived health and safety concerns. Duquesne Light's liaison for the Advanced Metering Infrastructure (AMI") Program, Kevin Baden, spoke with Francis Hriadil on October 11, 2016, to discuss Complainants' concerns. Mr. Baden also advised Francis Hriadil there is not an opt out option available in Pennsylvania at this time. Complainants then filed this Formal Complaint.

(6) Duquesne Light has not yet installed a smart meter at the Property, but, if Complainants want to continue to receive electric service from Duquesne Light, they may not opt out of having the meter installed. State law does not permit the exemption sought by Complainants. Act 129 of 2008 directed Duquesne Light and other electric distribution companies to file smart meter procurement and installation plans with the Commission. Duquesne Light filed such a plan, which was approved by the Commission on May 6, 2013, at Docket No. M-2009-2123948. As set forth more fully in Duquesne Light's New Matter and Preliminary Objections, state law requires that all customers of Duquesne Light -- including Complainants -- receive a smart meter.

(7) The articles and other documents attached to the Complaint are written documents that speak for themselves. Complainants' representations regarding those documents are denied.

Complainants (Our) Response:

4 (1) (a). In the paragraph (1), DLC Counsel's again refers to "opt-out." As stated in our Responses to their Preliminary Objections, this reference is irrelevant and immaterial. Per the first and foremost tenet, Provision § 2807 (f) (2) (i), of Act 129, **we have never agreed to opt-in. We have never requested a smart meter, nor have we agreed to pay for a smart meter.** We again aver that this statement has been

addressed and argued in Complainants November 29, 2016 Responses 1 (a), 1 (g), 2(a), 2 (c), 4 (c), 5 (a) - 5 (c), 6 (a) - 6 (d) to the Respondent's Preliminary Objections. The continued rote reference to us requesting an opt-out of a program that we never agreed to opt-into is a misrepresentation of the facts of the situation.

4 (1) (b). In paragraph (1), DLC Counsel's makes the statement that "Duquesne Light further **denies that a smart meter would have an adverse impact on Complainants' health, safety, or privacy." (my emphasis)** This assertion is easily and routinely made; but, it cannot be substantiated even to a reasonable degree based on numerous and increasingly occurring reports by reputable, respected, credentialed, unbiased, and independent experts, institutions, associations, and agencies that have published evidence that contradicts this blanket assertion. The Complainants (we) have supplied only a few of the many available reports that exist in the Supporting Documents and Exhibits that were provided with our Formal Complaint and Responses.

4 (2). In paragraph (2), asserts that their Smart Meter wireless network is "**secure**" **(my emphasis)**. This is another assertion that is easily and routinely made; but, it cannot be substantiated even to a reasonable degree. Anyone that has even a peripheral understanding of networks, understands how fallacious and, to be blunt, ridiculous this kind of claim really is. One only needs to refer to the frequent reports in the press of many and increasing occurrences of breaches in "secure" networks. For example, there was the December 15, 2016 Time magazine disclosure entitled **"Why the Latest Yahoo Hack Is So Much Worse Than You Think" (my emphasis)** which was summarized as **"It's a nightmare for the company and for a billion of its users" (my emphasis)**. Refer to (http://time.com/4604273/yahoo-hack-verizon/). As another example, there is the July 28, 2016 CRN industry report, **"The 10 Biggest Data Breaches Of 2016 (So Far)" (my emphasis)**, which we have supplied as [Exhibit 1 of 7

(2 pages)], in which it was emphatically declared that **"No One Is Immune" (my emphasis)**. And, there are many, many more - too many to be included here; but, these reports are frequent and are part of the public record. Even former Director of the CIA, James Woolsey, has gone on public record stating, (https://www.youtube.com/watch?v=rIFD1sUTGX8)

> **"What they're doing now, they're constructing what they call a smart grid. And they're going to make it easier for you and me to call our homes on our cell phone and turn down our air conditioning on a hot afternoon if we're not there. Great. But, that may well mean that a hacker in Shanghai with his cell phone can do the same thing or worse. And, a so-called smart grid that is as vulnerable as what we've got is not smart at all. It's a really, really stupid grid." (emphasis added)**

So, this "Smart Grid" program, with its Smart Meters, is essentially taking an electrical infrastructure that had many inherent built-in physical safeguards that made hacking physically impossible to carry out system-wide, due primarily to the use of an Analog Meter based infrastructure, and is creating an electrical distribution network based on "Smart Meters" that is vulnerable to hacking at any point and any every point along the electrical network. The EDC's Power Generation Facilities, the EDC's Power Distribution Facilities, the EDC's Data Storage Facilities, the EDC's Data Analysis Facilities, the EDC's Cellular WWAN, the EDC's Cell Relays, all the way down to the individual EDC Smart Meters on each and every residence and building - all are now vulnerable to hacking. Instead of a system that has only a limited number of vulnerable points, we will now have a system that is vulnerable from top to bottom, anywhere and everywhere, and at all levels. To be honest, if I had presented a proposal for such a system to the Air Force, in my capacity as an engineering analyst at Northrop Corporation, I would have been laughed out of the room and reassigned. **The word "secure" cannot reasonably be applied to this type of network grid, and it cannot be realistically guaranteed.** Many experts have sounded warnings about this situation. What truly needs to be done and what would be in the best interest of the general public is modernizing the electrical generation, distribution, and resource infrastructure, rather than trying to force this

vulnerable, hazardous, invasive, and unwelcome end-metering technology on ill-informed homeowners.

4 (F). In response to Respondent Counsel's Footnote (F), Smart Meters are not necessary for customers to do such things as shift portions of their power usage to non-peak hours. The supposed benefits touted in the Footnote are always made and are always accepted at face value; but, it does not hold up under even cursory examination. The EDCs, and even Duquesne Light has admitted as such, in presentations made before various PUCs, including the PA PUC.

> For example, in testimony that Duquesne Light Company gave before the PUC on August 14, 2009, concerning Duquesne Light's Smart Meter Procurement and Installation Plan, Docket No. M-2009-2123948 Exhibit C, the following question was asked of Duquesne Light Technology Director Ruth Ann DeLost by a member of the PUC: [Exhibit 2 of 7 (5 pages)]
>
> ...
>
> Line 22 Q. **Does Duquesne expect to achieve significant cost savings with the**
> Line 23 **implementation of Smart Meters? (my emphasis)**
>
> Page 8
>
> Line 1 A. **No.** ... **(my emphasis)**
>
> Page 9
>
> As another example, in testimony given before the British Columbia Utilities Commission in the Matter of the Utilities Commission Act R.S.B.C. 1996, Chapter 473 And Re: FortisBC Energy Inc. Application for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project; Kelowna, B.C.; March 11, 2013; the following question was asked and answered. [Exhibit 3 of 7 (4 pages)]
>
> Note: (Mr. WARREN is Mr. MARK RICHARD WARREN, Affirmed representative of FortisBC Inc., an EDC, testifying before the Utilities Commission in Kelowna, B.C.)
>
> FortisBC Inc. CPCN for AMI
> Volume 7, March 11, 2013 Page: 1334
>
> 12 MR. FLYNN: Q: In a typical -- well, let's discuss
> 13 mod appliances. How many smart appliances do you envision
> 14 each home having?
> 15 MR. WARREN: A: So, I think we talked about this on a

16 previous day, that we're estimating that over time
17 that **we're hoping that 30 percent of – or our best**
18 **guess is that 30 percent of homes will have an in-home**
19 **display. (my emphasis)**

What Mr. WARREN is admitting here is that their best hope is that maybe 30 percent of homes would even consider using this "empowerment". And, that number is clearly pulled right out of the air. No justification is ever given for even that low of a number.

Why this is important and pertinent here is that FortisBC was testifying in reference to deploying the SK9AMI7 Smart Meter in the same type of grid that Duquesne Light is currently deploying in the Pittsburgh area.

So, has the deployment of Smart Meters in various areas actually lived up to the stated benefits and claims?

The answer is a resounding no. There have been complaints, after complaints, after complaints, about overbilling, overcharging, rising costs, etc. (my emphasis)

Just briefly,

- Palo Alto has been installing Smart Meters since 2009; but stopped because they made **no economic or functional sense to install Smart Meters. (my emphasis)**
- **The Attorneys General of at least 3 states** have come out and opposed Wireless Smart Meters because the **costs outweigh any claimed financial benefits to the customer. (my emphasis)**
- In Jan of this year, the electric utility company in Ontario decided to **pull the plug on 36,000 Smart Meters, and laid out plans to remove 88,000** that they had already installed, because they were unreliable. Homeowners were frequently overbilled. **(my emphasis)**
- In a written submittal filed with the Massachusetts PUC, Northeast Utilities stated that

  (https://skyvisionsolutions.files.wordpress.com/2014/02/northeast-utilities-ma-dpu-12-76-submittal.pdf)

  "There is no rational basis for ... mandated implementation of [smart meters]."

  "There is no cost justification that can support the implementation of [smart meters]."

  "Mandating [smart meters] creates an intractable obstacle to grid modernization."

  "An Advanced Metering System is not a 'basic technology platform' for grid modernization, and is not needed to realize 'all of the benefits of grid modernization."

  "The cost remains unjustified by the benefits." (my emphasis)
- Consumers Digest did an investigative report that indicated that these Smart Meter programs represent little more than a "**boondoggle** being foisted on consumers by politically influential companies" who are looking to make huge profits. And, they found that the **negative consequences outweigh any claimed benefits in cost, in rate changes, and in energy savings. (my emphasis)**

4 (3) (a). In paragraph (3), Respondent's Counsel asserts "**the Company's smart meters,** like its traditional analog meters, utilize low-energy RF waves to transmit electricity, but **transmit RF waves for only short periods every day.**" This statement is disingenuous and blatantly untrue. Smart Meters are nothing like traditional Analog Meters in design, construction, reliability, and operation. And, the SK9AMI7 Smart Meter, in fact, pulse radiates 100s to 1000s of times a day to communicate with the other Smart Meters in the grid, and/or with the Cell Relay.

Duquesne Light, as do many other EDCs, never make this clear in their literature or in their remarks. They typically bury this particular detail, if they even present it at all. Their presentations are generalizations that are full of evasions, misrepresentations, and disinformation. In fact, it took a Court Order in California to force PG&E (a CA EDC) to admit the truth. Specifically, PG&E was forced to admit that while each of their Smart Meters broadcasts actual usage data only 6 times a day, it actually emits a signal on average 10,000 times a day, and in some cases as often as 132 times per sec. Most of these emissions are for communication with all of the other meters in the network. PG&E has also admitted that their Smart Meter's peak power is 2.5 Watts, which is 10x more powerful than a cell phone, and that it continuously emits a small amount of radiation even when not broadcasting. Why is California pertinent to what happening in Pennsylvania? It is pertinent because Respondent's Counsel specifically refers to California in their Answer and New Matter.

As for the SK9AMI7 Smart Meter, which Duquesne Light is installing in Pennsylvania, the Itron White Paper - "Wireless Transmissions: An examination of OpenWay Smart Meter Transmissions in a 24-Hour Duty Cycle" [Exhibit 4 of 7 (4 pages)] for the Itron SK9AMI7 OpenWay Centron Smart Meter provides Duty Cycle, Time, and Transmission Burst data.

This data is repeated below:

	Duty Cycle	Time in 24 hr
Mean	0.06%	53.14 sec
Maximum	0.58%	497.80 sec
Minimum	0.02%	18.31 sec
Median	0.06%	49.81 sec

Itron also states that their Maximum Duty Cycle expectation lies somewhere between 1% (14.4 min/day) and 5% (72 min/day). And, in typical fashion, they do not provide an exact Transmission Burst Time Interval; they only state that each transmit burst is less than 150 mSec = 150 millisec = 0.15 sec.

Using this Itron provided data, produces the following pulse transmission results

	Duty Cycle	Time in 24 hr	Number of Pulse Transmissons in 24 hr
Minimum	0.02%	18.31 sec	> 122 (> once every 12 min)
Mean	0.06%	53.14 sec	> 354 (> once every 4 min)
Median	0.06%	49.81 sec	> 332 (> once every 4 min)
Maximum	0.58%	497.80 sec	> 3,319 (> once every 26 sec)
Abs Max	5.0%	~ 4,291 sec	> 28,607 (> once every 3 sec)
"Expected" Max	1.0%	~ 858 sec	> 5,720 (> once every 15 sec)

Data from California again, indicates that Smart Meter Transmission Pulses typically last from 2 - 20 millisec each, not the 150 millisec upper limit provided by Itron. The shorter the Transmission Pulses are, the more pulses that occur throughout the day. Can we get a better idea of what the SK9AMI7 OpenWay Pulse Transmission interval really is? It turns out that there is another source of data available that does indeed provide that.

In testimony given before the British Columbia Utilities Commission in the Matter of the Utilities Commission Act R.S.B.C. 1996, Chapter 473 And Re: FortisBC Energy Inc. Application for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project; Kelowna, B.C.; March 11, 2013; 1., the following question was asked and was answered by Dr. YAKOV SHKOLNIKOV, Affirmed FortisBC Inc. expert witness, and was confirmed by Mr. MARK RICHARD

WARREN, Affirmed representative of FortisBC Inc. about the average pulse transmissions per day of the Itron SK9AMI7 OpenWay Centron Smart Meter.

[Exhibit 3 of 7 (4 pages)]

FortisBC Inc. CPCN for AMI
Volume 7, March 11, 2013 Page: 1318

MR. FLYNN: Q: Thank you. On average, how many pulses per day would that transmitter emit?
DR. SHKOLNIKOV: A: I think the number was filed as interrogatory, and the average is approx I believe 1,286 per bursts of transmission per day.
R. WARREN: A: 1268.
DR. SHKOLNIKOV: A: Oh, 1268.

Furthermore, FortisBC Inc. submitted Exhibit C4-4 FortisBC Inc. Advanced Metering Infrastructure CPCN on October 26, 2012, which stated on page 32, para. 55.0,

[Exhibit 5 of 7 (2 pages)]

BCSEA-SCBC IR1 October 26, 2012
FBC AMI CPCN Page 32 of 42

55.0 Topic: Health

Reference: Exhibit B-1, Appendix C-5, Status of Research on Radiofrequency Exposure and Health in Relation to Advanced Metering Infrastructure, (Sub-) Appendix A, Technical Memorandum, Advanced Metering Infrastructure Exposure Assessment, p.A-2 (pdf p.564 of 747)

"In the 900 MHz band, the signal power from the Itron AMI7 meter (FCC ID SK9AMI7) is 689 milliwatts (mW) for an antenna gain of 1.66. Under typical use, the duty cycle is between 0.02% and 0.58% with a mean of 0.06%. The maximum duty cycle under all circumstances is 5%." [underline added]

This matches the information supplied on the Itron White Paper referred to earlier.

These 2 pieces of information establish that the Mean/Average Duty Cycle of 0.06% equates to the quoted average of 1,286 pulse transmissions per day, which further establishes that the actual Transmission Burst Time Interval is closer to 41 millisec = 0.041 sec, than the 150 millisec quoted in the Itron White Paper.

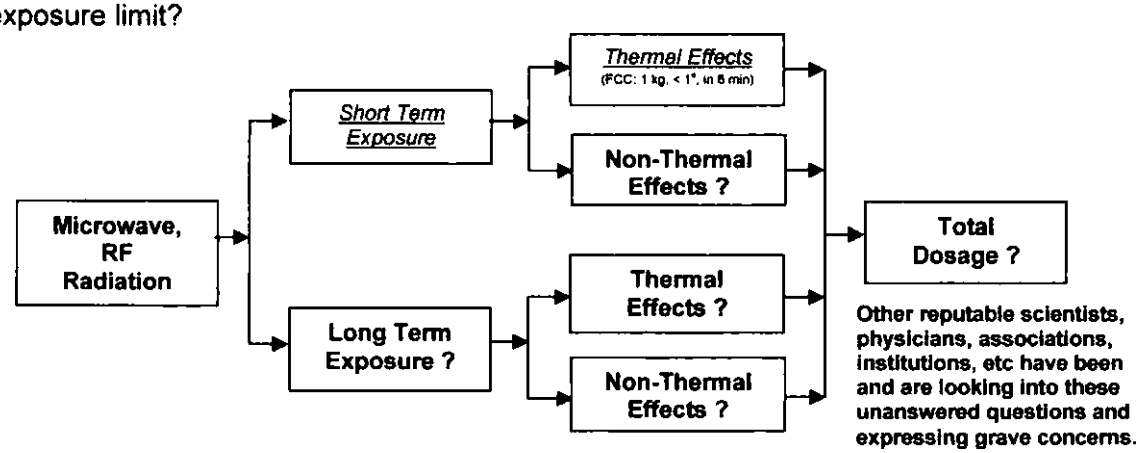
With this piece of data, the pulse transmission table on page 10 becomes

	Duty Cycle	Time in 24 hr	Number of Pulse Transmissons in 24 hr
Minimum	0.02%	18.31 sec	429 (once every 3.36 min)
Mean	**0.06%**	53.14 sec	**1,286 (once every 1.12 min)**
Maximum	0.58%	497.80 sec	12,431 (once every 7.0 sec)
Abs Max	5.0%	~ 4,291 sec	107,167 (once every 0.81 sec)
"Expected" Max	1.0%	~ 858 sec	21,433 (once every 4.0 sec)

In either case, the evidence is clear that the SK9MIA7 Smart Meters broadcast 100s to 1000s of pulse transmissions, like a pulsating strobe, on a regular basis throughout the day, 24 hrs a day, 7 days a week. This is never disclosed to the general public. And, it is completely mischaracterized by the disingenuous Duquesne Light statement that they transmit "for only short periods every day.

4 (3) (b). In paragraph (3), Respondent's Counsel also states that the Federal Communications Commission ("FCC") has established safe limits for RF exposure and the RF exposure for Duquesne Light's smart meters is well below the limits set by the FCC. This is another mischaracterization of the facts. Again, these statements are always made and they are always taken at face value; but, they do not hold up under close scrutiny and they do not justify the safety of Smart Meters.

First, "*what did the FCC assess*", and "**what did they not assess**" to set their RF exposure limit?



The FCC assessed only the thermal effects of short term exposure. They did not assess non-thermal effects, and they did nothing to assess long term exposure. The FCC only said that it does not produce damage by thermal means, which is through a heating effect. That is all it said. **RF radiation has, in fact, been shown to produce damage by other means than thermal.** Supporting Documents, Exhibits, and References establishing this were provided with our Formal Complaint and our Responses to Duquesne Lights Preliminary Objections.

4 (3) (c). In paragraph (3), Respondent's Counsel also specifically references a study completed by the **California Council of Service and Technology**, which states that "smart meters, when installed and maintained properly, result in lower RF emission than most common household electronic items, such as cell phones, microwaves, wireless internet, baby monitors, and garage door openers."

This "study" has been refuted and discredited by no less than 3 separate and independent expert sources.

1. (2 pages) David Carpenter M.D., Public Health Physician and Former Dean of the School of Public Health at the University at Albany, on the faulty report by the California Council on Science and Technology entitled, "Health Impacts of Radiofrequency from Smart Meters." Dr. Carpenter asserts and has testified that **"there is conclusive evidence for adverse health effects in humans."**
2. (11 pages) Daniel Hirsch, University of California, SC, Lecturer, Director of Program on Environmental and Nuclear Policy, on the same faulty report by the California Council on Science and Technology, which was based on estimates from the Electric Power Research Institute (EPRI), an industry group. His analysis shows that **the whole body exposure from a Smart Meter is actually orders of magnitude higher than that of a cellphone**, rather than orders of magnitude lower as is routinely claimed.
3. (14 pages) Karl Maret, M.D., BS in EE, MS in BE, President of Dove Health Alliance, a non-profit foundation specializing in the area of Energy Medicine, also asserts that this same CCST report used by many as evidence to validate the safety of Smart Meters **contains inaccuracies and minimizes the biological effects and health impacts of non-thermal radiofrequency radiation**, such as those produced by wireless technologies including Smart Meters

Copies of these three reports were included as Exhibits 1, 2, and 3 supplied with Complainants November 29, 2016 Response to Duquesne Light's original Preliminary

Objections to Formal Complaint.

4 (3) (d). In paragraph (3), Respondent's Counsel also specifically asserts that "The World Health Organization has similarly concluded that no adverse health effects have been demonstrated to result from exposure to low-level RF." This again is incorrect. Dr. Ronald Powell, a credible independent expert who testified before the Maryland General Assembly, published the content of his testimony in his document entitled, "A Message to the Maryland General Assembly on the Danger of Smart Meters" by Ronald Powell Phd". This report was supplied as Supporting Document 06 with Complainants (our) Formal Complaint to the PA PUC.

In his December 14 testimony, Dr. Powell detailed the specific health problems that have already been linked with the RF radiation given off by these Smart Meters, with specific reference to 3 wide ranging reviews of the findings that have been published by the international biomedical research community, namely "The BioInitiative 2012 Report", "Health Effects of RF - Research Review" (at the FCC), and "Electromagnetic Sensitivity and Electromagnetic Hypersensitivity: A Summary". There is also reference to a number of Medical Associations such as the American Academy of Environmental Medicine and the American Academy of Pediatrics (AAP). All provide **irrefutable evidence correlating RF exposure to neurological, cardiac, and pulmonary disease, as well as reproductive and developmental disorders, immune dysfunction, cancer, and other health conditions. Everyone is susceptible to this; but, those who are most vulnerable are the young, the elderly, and women who are pregnant.**

And, the **World Health Organization (WHO)** has indeed recognized this fact. It is a matter of record that on October 20, 2011, the International Agency for Research into Cancer (IARC), which is part of the World Health Organization released a new

assessment. They had convened a panel of 31 experts from 14 countries, including the United States, to look at the available evidence. Their verdict was that **"Radio Frequency Electromagnetic Fields"** (the sort given off by mobile phones and Smart Meters) **belong to the "Group 2B" class of agents, such as lead, engine exhaust, and chloroform, and as such, represent a potential "carcinogenic hazard".** [Exhibit 6 of 7 (6 pages)]

And, we again reference Daniel Hirsch, University of California, SC, Lecturer, Director of Program on Environmental and Nuclear Policy, cited in Complainants (our) Response 4 (3) (c) here-in on page 13, in which he established that **the whole body exposure from a Smart Meter is actually orders of magnitude higher than that of a cellphone**, rather than orders of magnitude lower as is routinely claimed.

4 (3) (e). In further refutation of the statements made by the Respondent's Counsel in paragraph (3), the Complainants (we) refer to the expert testimony received by the PA PUC from Dr. Andrew A Marino. His testimony is summarized in his report, "Expert Report of Andrew A Marino" dated August 8, 2016. The referenced pages from report are provided as [Exhibit 7 of 7 (14 pages)] .

> Dr. Marino received a Phd in Biophysics in 1968, and a JD in 1974. From 1964 - 2014, worked full-time teaching and performing research in the area of experimental biology that deals with the role of natural electromagnetic energy in animals and human beings, and with the effects of man-made electromagnetic energy on animals and human beings. For 33 years, he carried out research at the LSU Medical School, where he was a professor in the departments of orthopedic surgery, neurology, and cellular biology and anatomy.

In his testimony, Dr. Marino definitively refuted and discredited many of the standard assertions and claims made by various EDCs, which have been repeated in the Respondent's Answer and New Material. For expediency I have excerpted a number of pertinent responses by Dr. Marino from his expert report.

Excerpt #1: By EDC PECO, "expert witness" Dr. Mark Israel (Physician)

His Assertion: (people) ...have not been harmed by (utility company) Smart Meters, and...(they will not) be harmed in the future.

Dr. Marino: Dr. Mark Israel, a Pediatrician with a sub-specialty in Oncology, *who has published in the areas of biochemistry* and the molecular biology of cancer, has not worked in the area of the biological effects of electromagnetic energy.

Refuting Dr. Davis's testimony of May 18, 2016 and May 20, 2016, Dr. Marino stated:

Dr. Israel's testimonies **"did not come from scientific analysis."** Dr. Israel rationalized his choices of peer reviewed publications by **"cherry-picking published studies** that fit his mindset, particularly the work of Rubin. Dr. Israel's reliance on Rubin was to me the clearest possible indication that he does not know the territory related to the health risks of electromagnetic energy."

(Dr. Rubin is a Psychologist who claims that electromagnetic hypersensitivity is a psychosomatic disorder. He carried out some experiments to find electromagnetic hypersensitivity. "But, he didn't find it so he concluded essentially that it didn't exist. But, in science, a negative result is universally acknowledged as having low probative value, because anybody can find nothing. Special talent or training is not needed. The upshot is that one hundred negative studies can be conclusively refuted by one valid positive result. Our one study showed that he was wrong to interpret his observations to mean that electromagnetic hypersensitivity did not exist.")

Dr. Marino followed with, "I think that Dr. Israel's testimony was polemical rather than scientific. Essentially, he doesn't accept the existence of electromagnetic hypersensitivity. I think his perspective is understandable because the research area involving electromagnetic bio-effects is far from his routine responsibilities as a physician. Nevertheless, it is **not credible for him to enter this field, and make a 'medical evaluation,'** and then ask to be believed because he is a doctor, which is what it seems to me that he did."

Excerpt #2: By EDC PECO, "expert witness" Dr. Christopher Davis (Engineer)

Dr. Marino: Dr. Davis is an engineer. He is not an experimental biologist. His expertise is Engineering Support. He has not worked in the area of the biological effects of electromagnetic energy.

In his testimony of May 18, 2016 and May 20, 2016, Dr. *Davis said that Smart Meters emit electromagnetic energy*, that the energy is not unusual, and that the energy is safe because the FCC says so.

Dr. Marino characterized Dr. Davis's testimony as **inaccurate and misleading in many respects.**

Assertion: Smart Meters emit electromagnetic energy, that the energy is not unusual.

Dr. Marino: "I agree that Smart Meters emit energy. I do not agree with the assertion that the energy is not unusual because, in the context he used it, the claim is misleading.

Because what or what is not 'unusual' depends completely on the frame of reference. ...If the frame of reference is the natural world as it existed before man-made electromagnetic energy was invented, Smart Meter energy is unusual because it is about a billion times stronger than the corresponding natural level, more or less. If the frame of reference is the location in the houses of the Complainants where the Smart Meters will be installed, then it is unusual because **the resulting energy at those locations will be about a million times stronger compared with pre-installation levels, more or less**."

Assertion: **The energy is safe because the FCC says so.**

Dr. Marino: "According to the FCC, Smart Meters and Cellphones are safe when manufactured according to the presently mandated emission levels. But the FCC defines an emission level as 'safe' if it doesn't result in adverse biological effects caused by heating or cooking of the exposed subject. **Nowhere does the FCC say that Smart Meters are safe with regard to physiological changes caused by physical processes other than heating or cooking. That claim is unsupportable and counter-scientific, and has not been made by the FCC.** Dr. Davis's testimony is pregnant with the notion that the FCC says that Smart Meters are safe with respect to all possible mechanisms which is not the case."

Assertion: There have been many reports by expert panels whose consensus is that there is no consistent, reproducible evidence electromagnetic energy causes any biological effects.

Dr. Marino: This is **extremely misleading**.

"The thrust of his (Dr. Davis's) testimony is to assert that all experts agree that man- made electromagnetic energy in the environment, including but not limited to Smart Meters, doesn't cause any biological effects. I know, or have known, many such experts, perhaps most, either personally or by reading their publications, and I can say without any qualification that their consensus is the opposite of the one Dr. Davis has asserted. Even more **counterfactual**, Dr. Davis trusts that the experts on the panels he cited were disinterested, but historically that has almost never been the case."

Assertion: ...installation of a Smart Meter wouldn't increase the amount of electromagnetic energy in the house where it is installed.

Dr. Marino: "**When electromagnetic energy is created at a specific location the laws of physics almost always require that it add to, not cancel, any preexisting electromagnetic energy**. There are exceptions, but they do not apply in a context relevant to this case."

Assertion: ...the only possible biological effects from man-made electromagnetic energy occur by meaning of heating or cooking tissues. Since Smart Meters can't cause those effects, they must be safe.

Dr. Marino: (This)..."**premise is wrong. There is a very large database of empirical studies in experimental biology that demonstrates beyond reasonable doubt that biological effects can occur at levels of man-made electromagnetic energy actually present in the environment.**"

Assertion: ...if the (Smart Meter) energy levels were low compared with some reference value, then the (Smart Meter) energy levels wouldn't matter from a health perspective.

Dr. Marino: ...(Dr. Davis) "is an engineer and his professional activities involve working with what are called 'linear systems', by which I mean things that follow laws whereby if a little changed does something, then a change ten times as much will do ten times more. Virtually every system in the world of an engineer works that way.

But, **animals and humans are nonlinear systems**, by which I mean their laws can allow things to happen which cannot happen in linear systems. For example, **human beings can exhibit very strong responses to very small stimuli in the complete absence of a proportion between the cause and the effect.** Dr. Davis's assumption that the stimulus-response relationships of human beings are governed by linear laws is wrong.

Excerpt #3: **Current Opinions of Government Agencies**

Assertion: **Smart Meters are safe**.

Dr. Marino: (Dr. Marino **discounted the credibility of those opinions** for two reasons:)

"First, their positions are **far behind the present state of the science**. They are based on out-moded concepts which the independent workers who study the effects of electromagnetic energy that I know do not regard as reasonable.

Second, the legal structure of federal law as regards the toxic side-effects of man-made environmental electromagnetic energy effectively requires the agencies to discount the health risks due to man-made electromagnetic energy in the environment...

Excerpt #4: **Official Positions of Private, National, and International Agencies**

Assertion: **Smart Meters are safe**.

Dr. Marino: (As with US Government Agencies) ..."their positions are **far behind the present state of the science, and are heavily biased in favor of industry positions**. In addition, in all the cases that I know about, the decisions of the agencies were star-chambered processes in which those with opposing views were excluded."

Excerpt #5: **Dr. Marino's Concluding Remarks which are equally applicable in this case: (One may substitute Duquesne Light for PECO because their assertions are exactly the same)**

"First, [there] is a reasonable basis in established science for the Complainants' concern regarding risks to human health caused by man-made electromagnetic energy in the environment, including the type of electromagnetic energy emitted by Smart Meters. These health risks are heightened in the very young, the very old, and in those with preexisting diseases or disorders.

Second, electromagnetic hypersensitivity is a documented neurological condition in which the affected person experiences musculoskeletal, immunological, and/or neurological symptoms that noticeably flare or intensify upon exposure to man-made electromagnetic energy in the environment.

Third, the Complainants were forced into the almost impossible position of conducting experiment[s] on themselves to prove to PECO's satisfaction **that their claims of a link between their symptoms and electromagnetic energy from Smart Meters were sufficiently credible as to warrant some remediable action by** PECO.

Fourth, there is no justifiable reason for PECO **to doubt the reality of the Complainants' symptoms, to question their intentions in seeking relief, or to not respect and implement the advice they received from their physicians that exposure to Smart-Meter energy should be avoided.**

Fifth, chronic exposure to the electromagnetic energy from Smart Meters causes risks to human health that go far beyond the capability of the energy to trigger hypersensitivity reactions in sensitive persons. A large literature in experimental biology indicates that man-made electromagnetic energy, including that from Smart Meters, causes biological effects involving every essentially physiological process that occurs in living organisms. A

large literature in non-experimental biology shows that man-made electromagnetic energy, including that from Smart Meters, is associated with a plethora of human diseases. People who suffer from pre-existing conditions are particularly vulnerable, and all the Complainants suffer from such conditions.

Sixth, PECO's **claim that the FCC has pronounced Smart Meter safe is spurious because the FCC has made that statement only with regard to the heating and cooking effects of electromagnetic energy. The Complainants have made no claims that Smart Meters are like microwave ovens.**

Seventh, PECO **has claimed that expert committees have pronounced smart meters safe, but** PECO **has not acknowledged the blatant conflicts-of interests that infect such committees nor the serious limitations on their reports, such as the failure to address much of the relevant literature.**

Eighth, PECO **proposes to expose human beings to smart-meter electromagnetic energy over their objection under conditions that would not be acceptable to any institution in the United States where human experimentation can lawfully be performed. Consequently, coercing the Complainants to endure the risks and uncertainties of such exposure is unwarranted, unjustified, and would amount to involuntary human experimentation by** PECO."

4 (3) (e). So, Duquesne Light's promotional brochure mentioned in paragraph 3, and included as their Exhibit B, is simply inaccurate, misleading, and disingenuous.

4 (4). In paragraph (4), Respondent's Counsel "denies that its smart meters pose a safety hazard." This has been responded to in 2 (a) and 2 (b) of Complainant's November 29, 2016 Response to Respondent's original Preliminary Objections filing.

Duquesne Light's denial aside, it cannot be denied that there have been 1000s of fires related to Smart Meters documented in PA, CA, TX, FL, NV, IL, and across Canada. Property has been damaged, and there have been fatalities. All of these installed Smart Meters were "certified safe" by the EDCs installing them, which **brings into question the safety standards and protocols that are currently being routinely applied and accepted.** Overheating was found to be a major issue. Causes were traced to the nature and quality of the Smart Meter design and construction, the quality of the installation, and the condition of the wiring in the residence, which is not even

evaluated or considered before installation. **In a program of this magnitude, in which the public safety is clearly at issue, merely satisfying some minimal safety standards and protocols is not adequate or sufficient, nor is it in the public interest. Only satisfying the highest safety standards and precautions possible would be appropriate and truly in the public interest. The general public and the residents of Pennsylvania deserve no less.**

In the United States, Authorities Having Jurisdiction (AHJs) assert that certification of electrical equipment is necessary and that Underwriters Laboratories is the preferred safety certification organization. These Smart Meter devices contain no UL Mark by Underwriters Laboratories, which does safety testing under the auspices of such agencies as OSHA. The UL Mark is the single most accepted Certification Mark in the United States, appearing on 22 billion products annually. Yet, no UL Mark appears on these Smart Meters.

In addition, these Smart Digital Meters are missing adequate Surge Arrestors to protect consumer-side electrical circuitry from utility-side voltage surges. They provide no Circuit Breaker Protection and are not designed to protect a homeowner's electrical circuitry. Also, they contain Flammable Materials and electronic components that are susceptible to overheating and explosion. And, they contain nothing to warn the homeowner of overheating, fire danger, or explosion.

Section 1501 of the Public Utility Code states the following:

> § 1501. Character of service and facilities. Every public utility shall furnish and maintain **adequate, efficient, safe, and reasonable service and facilities**, and shall make all such repairs, changes, alterations, substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper **for the accommodation, convenience, and safety of its patrons**, employees, and the public. **(emphasis added)**

4 (5). In paragraph (5), Respondent's Counsel provides a summary relating the circumstances and timeline of our filing a Formal Complaint. Unfortunately, as with other aspects of the Respondent's Preliminary Objections and their Answer and New Matter, their summary is just not accurate, nor is it correct, which is surprising as we provided a timeline and explanation in our Formal Complaint.

We will restate the truth of the timeline and the circumstances here.

On Saturday 9/24/2016, we received a recorded phone message on our answering machine, while we were out, that Duquesne Light was intending to install a Smart Digital Meter in the next 3 - 5 business days. We did not hear that message until late on Saturday, and we could not call anyone back. This was very short, last minute, notice, and we had little time to respond.

By Tuesday 9/27/2016, I was able to search online and find that Campbell Hawkins was the Vice President of Customer Care. We composed a message indicating our deep concern about this new technology and our objection to having it replace our reliable, safe, and fully function analog meter, which we immediately sent overnight, certified mail with tracking and return receipt, to the attention of Campbell Hawkins, the Vice President of Customer Care. I followed it up with an email to the Customer Care email contact, customercare@duqlight.com. We expected to hear a response from Duquesne Light; but, we did not.

On Thursday 9/29/2016, after not hearing anything from Duquesne Light, I sent another email to Duquesne Customer Care, further explaining our concerns.

On Friday 9/30/2016, after still not hearing anything back from Duquesne Light. I contacted the PA Attorney General's Office and they told me that I can file a complaint with the Pennsylvania Public Utilities Commission to prevent the installation. I again sent an email to Duquesne Customer Care, and informed Mr. Hawkins that I had been in contact with the Attorney General's Office and had obtained the PUC complaint form.

On Saturday 10/1/2016, after still not receiving any communication from Duquesne Light, we decided to move forward with our Formal Complaint to stop them from installing a Smart Meter. We filled out and signed the PA PUC complaint form. We felt that we had to do this very quickly because we did not know what to expect, and we wanted to be sure that our basic rights were protected.

On Monday 10/3/2016, we mailed our Formal Complaint and filed it with the PA PUC. There was no time to put everything that we could have or wanted to into our Formal Complaint; but, we filed what we did with the belief that it was enough to establish the legal sufficiency of our complaint. We

have come to learn and understand much more since that filing, none of which has alleviated our fears and concerns.

On returning from the Post Office, I found Duquesne Light was already in our condominium neighborhood changing out the electrical meters of our neighbors.

I then sent an email to Mr. Campbell Hawkins, the Vice President of Customer Care for Duquesne Light, informing him that we filed a Formal Complaint. I also sent copies of that email, along with a copy of our Formal Complaint, to Tom Wolf, PA Governor; Joseph Markosek, our PA State Representative, and Jim Brewster, our PA State Senator.

On Tuesday 10/4/2016, we waited to hear from Duquesne Light. No one contacted us.

On Tuesday 10/11/2016, after receiving a voice message days later from Mr. Kevin Baden with contact information for him, I called him back and spoke with him.

So, contrary to what Respondent's Counsel has stated, **our Formal Complaint was filed,** after repeated attempts to contact Duquesne Light over many days without a response,

many days BEFORE Mr. Baden left us a voice message on how to contact him,

which we received AFTER I informed Mr. Hawkins by email that we had filed a Formal Complaint.

In my discussion with Mr. Baden, as I had in my emails to Mr. Hawkins, I explained my technical background and that I had no inherent problems with or objections to new technology as long as it was safe, sensible, mature, reliable, cost effective, and performed as it was stated. I explained to him that I was surprised to discover that Smart Meters did not appear to satisfy any of these criteria. I asked him many questions that he could not credibly answer. For example, he stated that the meter will transmit to Duquesne Light only a for short time during the day. I said that it was my understanding that the SK9MIA7 Smart Meter, in the mesh Smart Grid that it was supposed to be utilized in, was actually active, receiving and transmitting pulsed signals, many 100s to 1000s of times during the day. He did not deny that. I told him

that if he could send us documented data, or could refer us to where we could find the data, that substantiated his statements and claims, that would be very helpful. His response was that that data wasn't available. Then, I asked him how I could believe anything he was saying on the phone, if there was nothing in writing to back it up. It was an amicable conversation; but, **Mr. Baden was unable to say anything or provide any reasonable verifiable backup that would cause us to reconsider and withdraw our Formal Complaint. I also mentioned to him that we never requested to have a Smart Meter installed.** He then stated that Pennsylvania had no "opt-out" provision. In lieu of a pointless discussion about no Federal Mandates and the interpretation and intention of Pennsylvania statutes, I told him we would continue to pursue the issue and our rights with the PA PUC. We ended our conversation there.

4 (6). In paragraph (6), Respondent's Counsel states that "if Complainants want to continue to receive electric service from Duquesne Light, they may not opt out of having the meter installed. State law does not permit the exemption sought by Complainants. ... As set forth more fully in Duquesne Light's New Matter and Preliminary Objections, state law requires that all customers of Duquesne Light -- including Complainants -- receive a smart meter." These statements were fully addressed in detail in Complainants (our) Responses to both Respondent's original Preliminary Objections and Corrected Preliminary Objections.

Respondent again raises the "red herring" of "opt out"; but, now with the **threat of suspension of service**. Again, as stated in Complainant's (our) November 29, 2016 Responses 1 (a), PA Act 129, as signed by Governor Rendell, has as its first and foremost tenet, § 2807 (f) (2) (i), that EDCs shall furnish smart meter technology "upon request from a customer that agrees to pay the cost of the smart meter at the time of the request". This is a voluntary opt-in provision which explicitly states that **customers may**

choose to join the Smart Meter program if they so desire, and if they do request a Smart Meter, the EDCs cannot deny those requests. It is a matter of fact that **we have never requested an opt-in to this Smart Meter program. We have never requested a Smart Meter. And, we have never agreed to pay the cost of a Smart Meter.** We have never requested any of this. So, the rote reference to us requesting an opt-out of a program that we never agreed to opt-into is a misrepresentation of the facts of the situation.

In our Formal Complaint, we have simply acknowledged that, as written in the PA Smart Meter Procurement and Installation Implementation Order, there is no explicit statement utilizing the term "opt-out"; but, that does not preclude or supersede the fact that **we have never "opted in."**

Duquesne Light, "by planning to install a smart meter at Complainant's residence" against the Complainant's (our) consent and stated objections is in direct violation of tenet § 2807 (f) (2) (i), of Act 129, and the expressed intent of the legislature as documented in Senate Journal Pages 2626-2631, Oct. 8, 2008. Here, Senator Tomlinson, states with regard to House Bill No. 2200 as amended by the Senate, and subsequently signed by Governor Rendell as Act 129, that "**It is not mandated, but it allows for ... anyone who wants to purchase a smart meter** which they feel will help them manage their electric load better." Here, Senator Boscola states, "**We also made sure that smart meters would not be mandated for every single ratepayer**. Not only is that a smarter approach to smart meter deployment, but it will also save electric customers hundreds of millions of dollars paying for something that will not provide a real benefit in their own households." And here, Senator Fumo states, "**In addition, we did not mandate smart meters, but we made them optional." (emphasis added)**

Provisions § 2807 (f) (2) (ii) and (iii) of Act 129 are clearly there to address cases not associated with or are beyond existing individual consumers, such as commercial,

users and non-commercial public and government users. And, we aver that § 2807 (f) (2) (iii) does not override or supercede § 2807 (f) (2) (i), the first and foremost tenet, and § 2807 (f) (2) (ii), because if it did, the three Provisions of § 2807 (f) (2) would then be illogical, inconsistent, and in irreconcilable conflict with each other. Since the legislature purposely included § 2807 (f) (2) (i) and (ii), this cannot be the case and they cannot simply be ignored and viewed as meaningless and irrelevant.

One may argue and disagree over the specific words that comprise § 2807 (f) (2) (iii); but, one cannot argue the intent and meaning of the legislature as documented in the General Assembly record.

Furthermore, even if the voluntary opt-in provision § 2807 (f) (2) (i) was not explicitly stated in Act 129, which it is, we do not concede that Smart Meter programs like Duquesne Light's are mandatory without exception.

First, we re-iterate that **there is no Federal mandate for Smart Meters**, according to George W. Arnold the national coordinator for Smart Grid interoperability at the National Institute of Standards and Technology. There is no Federal law mandating that the general public, or individual consumers, must join a Smart Grid program. The only requirement is that the consumer must be offered a Smart Meter which they can choose to accept or refuse. Or, the consumer can request a Smart Meter and volunteer to opt-in to the Smart Grid. As such, Duquesne Light must ask our permission to install a Smart Meter, and may not install a Smart Meter without our permission, per the Federal law. Furthermore, there are legal protections that no one can be forced to comply with an unrevealed contract between private corporations, to which they were never a party and had no knowledge of.

Second, we re-iterate that, all other issues aside and at a minimum, **the Public Utilities Commission, under its public safety mandate as defined in the Pennsylvania Public Utility Code, has the authority to grant waivers for**

individuals, or classes of individuals, facing potential risk or harm. And, we maintain that the PUC can choose to revise and rewrite the PA Smart Meter Procurement and Installation Implementation Order, taking into consideration the latest developments and occurrences. We have submitted our Formal Complaint with the belief that the PA PUC will recognize that **it is in the best interest of the general public**, which it exists to serve, to do this.

Again, Section 1501 of the Public Utility Code states the following:

> § 1501. Character of service and facilities. Every public utility shall furnish and maintain **adequate, efficient, safe, and reasonable service and facilities**, and shall make all such repairs, changes, alterations, substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper **for the accommodation, convenience, and safety of its patrons**, employees, and the public. **(emphasis added)**

Finally, we re-iterate here that even accepting as valid, which we do not (and we have already submitted valid reasons why we believe that this is not the case), that the wording of § 2807 (f) (2) (iii) specifies a mandatory system-wide 15 year deployment deadline starting from the enactment of the law in 2008, our current meter would not have to be replaced until the year 2023. This is still many years in the future. It is nowhere near 2023. Our current meter does not need to be replaced at this time as it is functioning normally, and will continue to do so for many years to come. **And, as we have not requested that our meter be replaced with a Smart Meter and as we have not requested to opt-in to the Smart Meter program, until the year 2023 occurs, it cannot be claimed that we are currently in any way in violation of any aspect of Act 129, no matter how it is interpreted.**

4 (7). In paragraph (7), Respondent's Counsel states that "The articles and other documents attached to the Complaint are written documents that speak for themselves. Complainants' representations regarding those documents are denied." **With likewise conviction and vigor, and a great deal more credible supporting**

backup, Complainants (we) deny the Respondent's representations regarding their assertions, pronouncements, exhibits, articles, documents, literature, either written or otherwise.

Deny, deny, deny. The Respondent can, out-of-hand, deny everything. Respondent can similarly choose to deny the existence of the Sun, the Moon, the Stars, Gravity, etc; but, that does not negate the fact that they exist, they are real, and they are true.

5. DLC Counsel's statement: No response is required to Complainant's request for relief. To the extent that a response is required, Complainants may not opt out of Duquesne Light's smart meter program for the reasons set forth in paragraph 4, which is incorporated by reference as if fully restated.

Complainants (Our) Response:

5. DLC Counsel's again refers to "opt-out." As stated here in Complainants Response 4 (1) (a) on page 4, and in our Responses to their Preliminary Objections, this reference is irrelevant and immaterial. Per the first and foremost tenet, Provision § 2807 (f) (2) (i), of Act 129, **we have never agreed to opt-in. We have never requested a smart meter, nor have we agreed to pay for a smart meter.** We again aver that this has been addressed and argued in Complainants November 29, 2016 Responses 1 (a), 1 (g), 2(a), 2 (c), 4 (c), 5 (a) - 5 (c), 6 (a) - 6 (d) to Respondent's Preliminary Objections. The continued reference to us requesting an opt-out of a program that we never agreed to opt-into is a misrepresentation of the facts of the situation.

6. DLC Counsel's statement: After reasonable investigation, Duquesne Light is without knowledge or information sufficient to form a belief as to whether Complainant has received 'Protection from Abuse" order, and, therefore, denies the same.

Complainants (Our) Response:

6. As of this date, Duquesne Light has not carried out any overt act that we would consider threatening or abusive. EDCs in other areas of the state, and in other

areas of the country, on the other hand, have carried out such actions. But, we point out that in Respondent's Section 4. Paragraph (6) of their Answer and New Matter, they now raise the **threat of suspension of service**. Complainants (we) have no insight into the specific actions that Respondent may attempt or have planned in the future, or any harassment that may ensue, and we reserve our right to file for a "Protection from Abuse" (PFA) order should the need arise.

Complainants (we) aver that, under the circumstances, any such threats are an act of intimidation which are "beyond the pale." **Complainants (we) are simply exercising our legal rights as residents of the state of Pennsylvania, as specified in Section 1501 of the Pennsylvania Public Utility Code (which clearly states that every public utility shall furnish and maintain adequate, efficient, safe, and reasonable service and facilities,... for the accommodation, convenience, and safety of its patrons) , etc. And further, Complainants (we) are exercising our inalienable rights as citizens of the United States of America. The protections explicitly stated in the Bill of Rights include, but are not limited to, the rights of self-determination with regard to one's own property, the right to be secure in one's own property, and the protection from cruel and unusual punishment.**

7(a). DLC Counsel's statement: It is admitted that this Formal Complaint is not an appeal from the decision of the Bureau of Consumer Services.

Complainants (Our) Response:

7 (a). No response is necessary.

7(b). DLC Counsel's statement: Duquesne Light denies the allegation in paragraph 7(b) of the Formal Complaint that Complainant has not spoken to a representative of the Company. To the contrary, the Company's representatives have communicated with Complainant regarding the smart meter program.

Complainants (Our) Response:

7(b). The Respondent's statement is not factual. As detailed in the timeline documented in our Formal Complaint and repeated (and expanded) herein in

Complainant's Response 4 (5) on page 22, after repeated attempts to contact Mr. Campbell Hawkins, the Vice President of Customer Care for Duquesne Light, no one from Duquesne Light spoke with us until days AFTER we filed the Formal Complaint on October 3, 2016. We were finally provided with contact information for Mr. Kevin Baden, and I spoke with him on October 11, 2016.

So, Complainant's (our) statement in Section 7 (b) of the Formal Complaint is no mere "allegation" that can be denied. It is a documented fact of the circumstances at the time of the filing of our Formal Complaint.

7(c). DLC Counsel's statement: Duquesne Light incorporates its response to paragraph 7(b) as if fully restated.

Complainants (Our) Response:

Again, the Respondent's statement is not factual. Refer to Complainant's Response 7(b) above.

8. DLC Counsel's statement: No response is required to this paragraph.

Complainants (Our) Response:

8. No response is necessary.

9. DLC Counsel's statement: No response is required to Complainant's verification and signature.

Complainants (Our) Response:

9. No response is necessary.

NEW MATTER

10. DLC Counsel's statement: The allegations in the preceding paragraphs of this Answer and New Matter are incorporated by reference as if fully set forth.

Complainants (Our) Response:

10. The preceding paragraphs of Complainant's Response to this Answer and New Matter are incorporated by reference as if fully set forth.

11. DLC Counsel's statement: Act 129 of 2008 directed Duquesne Light and other Electric Distribution Companies ("EDC") to file smart meter procurement and installation plans with the Commission.

Complainants (Our) Response:

11. No response is necessary.

12. DLC Counsel's statement: The Commission approved Duquesne Light's petition for approval of its smart meter procurement and installation plan on May 6, 2013, at Docket No. M-2009-2123948. A copy of the Commission's Order is attached as Exhibit C.

Complainants (Our) Response:

12. Respondent Exhibit C presents the Commission's April 4, 2013 Opinion and Order concerning Duquesne Light's Petition for Approval of Its Final Smart Meter Procurement and Installation Plan. No Exhibits were provided of Duquesne Light's Plan, or any modifications that have occurred since the April 4, 2013 Opinion and Order was released. As a result, the degree to which all of this is pertinent to our situation and our Formal Complaint, or even if it is, is unclear to us and we cannot comment at this time.

But, in reading through the April 4, 2013 Opinion and Order it is clear that elements of Duquesne Light's plan were unresolved at that point. And, one does find Commission policy statements referenced that may have a bearing on our situation, and our Formal Complaint. On pages 4 - 5, of the Respondent's Exhibit C, the Commission quite plainly states the following.

> **"Pursuant to our Regulations at 52 Pa. Code § 5.231, it is the Commission's policy to promote settlements. Settlement terms often are preferable to those achieved at the conclusion of a fully litigated proceeding.**
>
> * * *
>
> **..., settlements are encouraged by long-standing Commission policy."**
>
> **(emphasis added)**

Furthermore, the primary criteria used by the Commission in judging the suitability and acceptability of any settlement, is not whether it is in the specific interest of a Company, or even certain members of the Commission; rather the primary criteria in judging the

suitability and acceptability of any settlement is whether it is "**in the public interest.**" **(emphasis added)**

It is the Complainants (our) contention that our Formal Complaint to prevent the installation of a Smart Meter that was never requested or agreed to, per Provision § 2807 (f) (2) (i) of Act 129 as passed, is valid, sustainable, and in the public interest.

13. DLC Counsel's statement: Section 2807 of the Public Utility Code provides:

> (f) Smart meter technology and time of use rates.
>
> * * *
>
> (2) Electric distribution companies shall furnish smart meter technology as follows:
>
> (i) **Upon request from a customer that agrees to pay the cost of the smart meter at the time of the request. (emphasis added by Complainant)**
>
> (ii) In new building construction.
>
> (iii) In accordance with a depreciation schedule not to exceed 15 years.
>
> 66 Pa. C.S. § 2807(f) (2)

Complainants (Our) Response:

13. This is exactly the same as Item 6 of the Respondent's Preliminary Objections, and is simply repeated here. This was addressed and argued in Complainants (our) November 29, 2016 Responses 6 (a) - 6 (d) to those Preliminary Objections, and an overview was submitted here again in Complainants Response 4 (6) on pages 24 - 27. **Summarizing briefly, per C.S. § 2807 (f) (2) (i), Complainants (we) never requested a Smart Meter, never agreed to pay the cost of a Smart Meter, never requested to "Opt-In" to the Smart Meter program. And, as documented in the General Assembly Record, the stated intention of the Legislature in its passage of Act 129 was not to impose a universal mandate. Furthermore, Act 129 was signed into law on October 12, 2008. Even if C.S. § 2807 (f) (2) (iii), is interpreted as a general deployment deadline, which we do not concede, that**

deadline does not occur until the year 2023, which is still many years in the future. Thus, the Complainants (we) are currently in no violation of any aspect of Act 129. Rather, the Respondent attempting to install a Smart Meter at this time in the manner cited is in clear violation of this Act, and the intent of the Legislature. The details of this and more, are provided in the specific Complainant Responses cited above.

14. DLC Counsel's statement: The Commission has ruled that "[t]he use of the word 'shall' in the statutes indicates the General Assembly's direction that all customers will receive a smart meter." Evans v. PECO Energy Co., Docket No. C-2013-2368477, 2013 WL 7019103 at *3 (Pa. P.U.C. Dec. 19, 2013) (Hoyer, AU). Likewise, the Commission Implementation Order relating to the installation of smart meters provides: "The Commission believes that it was the intent of the General Assembly to require all covered EDCs to deploy smart meters system-wide when it included a requirement for smart meter deployment 'in accordance with a depreciation schedule not to exceed 15 years." Id. (quoting Smart Meter Procurement and Installation Implementation Order, Docket No. M-2009-2092655 (entered June 24, 2009)).

Complainants (Our) Response:

14. The General Assembly has documented quite clearly in the Legislative Record, in Senate Journal Pages 2626-2631, Oct. 8, 2008, what its intention and direction was at the time of its passage of Act 129. As re-iterated here in **Complainants Response 4 (6) on pages 25 - 27**, and in our Responses to Respondent's Preliminary Objections, Senator Tomlinson, states with regard to House Bill No. 2200 as amended by the Senate, and subsequently signed by Governor Rendell as Act 129, that "**It is not mandated, but it allows for ... anyone who wants to purchase a smart meter** which they feel will help them manage their electric load better." Here, Senator Boscola states, "**We also made sure that smart meters would not be mandated for every single ratepayer**. Not only is that a smarter approach to smart meter deployment, but it will also save electric customers hundreds of millions of dollars paying for something that will not provide a real benefit in their own households." And here, Senator Fumo states, "**In addition, we did not mandate smart meters, but we made them optional."**

(emphasis added)

These declarations by the legislators who passed Act 129 are unequivocal, unambiguous, and undeniable.

Furthermore, the Commission has, in more recent times, recognized legal arguments and Formal Complaints against the installation of a Smart Meter, that was unrequested and un-agreed to by the homeowner, brought forward by other Complainants, including but not limited to:

Norbert Sliwinski v Duquesne Light Company, C-2016-2559985,

Thomas and Margery McCarey vs PECO Energy Company, Docket No. C-2013-2354862

Laura Sunstein Murphy v PECO Energy Company, Docket No. C-2015-2475726.

Susan Kreider v. PECO Energy Company, Docket No. C-2015-2469655

The Formal Complaints by these Complainants, which may vary in some aspects but are not substantially different from our own, were ruled not only to be **legally sufficient** and to **define a cognizable claim**; but, were also ruled to be **in the public interest**.

In particular, it is noted that Susan Kreider, in Susan Kreider v. PECO Energy Company, Docket No. C-2015-2469655, asserted that her continued exposure to pulsed radiation emissions produced by a Smart Meter that was installed on her residence was, at a minimum, a contributing factor to her compromised health condition. It was established by her that her unilateral removal of that Smart Meter resulted in the improvement of her condition. And, in September 2016, it was ruled by the Commission that she had **established a prima facia case of harm caused by Smart Meters**.

15. DLC Counsel's statement: Simply put, "there is no provision in the statute that allows customers to 'opt out' of smart meter installation, as Complainants desire." Evans, 2013 WL 7019103 at *3 See also, Francis v. PECO Energy Co., Docket No. C-2014-2451351, 2015WL 5011620 at *7 (Pa. P.U.C. August 20, 2015) (noting that "there is no provision in the Code, the Commission's Regulations, or Commission Orders that permits a customer to opt out of having a smart meter installed on his or her premises."); Povacz v. PECO Energy Co., Docket NO. C-2012-2317176, 2013 WL 392699 (Pa. P.U.C. Jan. 24, 2013).

Complainants (Our) Response:

15 (a). There is no explicit statement utilizing the term "opt-out"; but, that does not preclude or supersede the fact that **we have never "opted in."** Likewise, Complainants (we) wish to point out that there are no specific statements in the statute utilizing terms or terminology such as "mandated", "mandatory", "100% of all customers", "all existing meters without exception", etc. either. This is simply not there. **§ 2807 (f) (2) (i) clearly states that the EDC shall provide Smart Meter Technology UPON THE REQUEST FROM A CUSTOMER. That is, it is a VOLUNTARY "OPT-IN" program, which was the definitively expressed intent of the Legislature upon passage of the Bill, as documented in Senate Journal Pages 2626-2631, Oct. 8, 2008, and summarized here-in in Complainants Response 4 (6) on pages 25 - 27.**

There is no need to "Opt-out" of a program that one has never "Opted-Into". DLC Counsel again refers to "opt-out." As stated here in Complainants Responses 4 (1) (a), 5, and in our Responses to their Preliminary Objections, this reference is irrelevant and immaterial. Per the first and foremost tenet, Provision § 2807 (f) (2) (i), of Act 129, **we have never agreed to opt-in. We have never requested a Smart Meter, nor have we agreed to pay for a Smart Meter.** We again aver that this been addressed and argued in Complainants November 29, 2016 Responses 1 (a), 1 (g), 2(a), 2 (c), 4 (c), 5 (a) - 5 (c), 6 (a) - 6 (d) to Respondent's Preliminary Objections. The continued rote reference to us requesting an opt-out of a program that we never agreed to opt-into is a misrepresentation of the facts of the situation.

15 (b). This statement references a number of prior cases related to "opt-out". These are the same cases referenced in paragraph 8 of Respondent's Preliminary Objections. We aver that this statement has been addressed and argued in 15 (a) here-in and in Complainants November 29, 2016 Responses 1 (a), 1 (g), 2 (a), 4 (c), 5 (a) - 5 (c), 6 (a) - 6 (d) to those Preliminary Objections. The continued rote reference to us

requesting an opt-out of a program that we never agreed to opt-into is a misrepresentation of the facts of the situation.

16. DLC Counsel's statement: Thus, by planning to install a smart meter at Complainants' residence, Duquesne Light is complying with the Commission's directives. State law does not allow Complainants to opt out of Duquesne Light's smart meter program.

Complainants (Our) Response:

16. DLC Counsel again refers to "opt-out." As stated here in Complainants Response 4 (1) (a), 5, 15 (a), and in our Responses to their Preliminary Objections, this reference is irrelevant and immaterial. Per the first and foremost tenet, Provision § 2807 (f) (2) (i), of Act 129, **we have never agreed to opt-in. We have never requested a Smart Meter, nor have we agreed to pay for a Smart Meter.** We again aver that this been addressed and argued in Complainants November 29, 2016 Responses 1 (a), 1 (g), 2(a), 2 (c), 4 (c), 5 (a) - 5 (c), 6 (a) - 6 (d) to Respondent's Preliminary Objections. The continued rote reference to us requesting an opt-out of a program that we never agreed to opt-into is a misrepresentation of the facts of the situation.

17. DLC Counsel's statement: On October 13, 2016, the Pennsylvania Public Utility Commission sent a letter to Complainants advising them that Act 129 mandated the deployment of smart meters, that Pennsylvania law does not provide for a customer to "opt out" of the smart meter program and that an Electric Distribution Company has the right to access its equipment. A copy of the Commission's October 13, 2016 correspondence is attached as Exhibit D.

Complainants (Our) Response:

17. The October 13, 2016 letter referred to above, was not received by us until October 20, 2016. This letter was received in response to an appeal we made to Governor Tom Wolf to look into this matter. We sent the Governor a copy of our Formal Complaint for him to review, and provide us with assistance. We did the same with a number of other PA Government Officials, which we mentioned in our Formal Complaint. They are: PA Attorney General Beemer; PA Representatives Joseph Markosek, Mike

Reese, Peter J. Daley; PA Senators Jim Brewster, Don White; and Monroeville Mayor Greg Erosenko. We do not think it is unreasonable or inappropriate for us to seek assistance from our elected representatives in government, and at a minimum we wanted them all to be aware of the situation. Many responded with support, and an interest to be kept informed about the status of our Formal Complaint and how it is handled.

So, the October 13, 2016 letter from the PA PUC was sent in response to our communications with Governor Wolf, and not as a response to the Formal Complaint that we filed with the PUC on October 3, 2016. It was sent by a Mr. Dave Hixson of the PA PUC, and copied to Governor Wolf.

We read Mr. Hixson's letter carefully and found statements there that were inaccurate on a number of critical matters. We were not reassured by Mr. Hixson's remarks, and found his letter to be unconvincing. So, we composed a 15 page response to Governor Wolf to correct Mr. Hixson's statements, and make the Governor aware of the full scope and history of this controversial program, as we have come to discover it. Much of this response, along with additional material, has been included in our filed responses, rebuttals, and exceptions to the Respondent's filings. Complainants (we) note that, at the time of our mailing to the Governor of our response to Mr. Hixon's letter, no information concerning the status and assignment of our Formal Complaint had yet been received from Secretary Chiavetta of the PA PUC, nor was there any indication of when such information would be forthcoming.

In that response, we also expressed our not insignificant fears and concerns about receiving fair and impartial treatment before the PA Public Utility Commission. We feel that these misgivings are not unfounded considering the record. It cannot be denied that the PA PUC formulated the Implementation Order upon which the whole

issue of a mandate rests. And, it cannot be denied that the wording of that Implementation Order differs in a fundamental way from the stated intention of the legislators at the time of the passage of Act 129, as documented in the Legislative Record. Yet, the PA PUC is the primary judicial body when an issue/complaint is brought forward challenging the installation of a Smart Meter by an EDC that has not been requested, and represents a credible threat of harm to the homeowner and his/her family. In other judicial venues where a conflict of interest seems apparent, arrangements are routinely made to change that venue and remove that conflict. Nevertheless, if the PA PUC ALJs cannot remain fair, impartial, and objective, in light of the preponderance of new science, expert analyses, peer reviews, etc. on the matter; then, unfortunately, they are part of the problem, and we stated as much to Governor Wolf and the other State and Municipal Officials that we contacted.

The Complainants (we) aver that current PA Public Utility Statutes, such as **Section 1501 of the Public Utility Code**, which states that

> **"Every public utility shall furnish and maintain adequate, efficient, safe, and reasonable service and facilities, ... as shall be necessary or proper for the accommodation, convenience, and safety of its patrons, ..." (emphasis added),**

grants the PA PUC with the necessary authority to revise, adjust, or provide a waiver to its Implementation Order, which would be in keeping with Act 129 and would more accurately reflect the stated intention of the Legislature. That is what would truly be in the best interest of the general public that the PA PUC is sworn to serve. One PA ALJ made a ruling about the meaning of the word "shall". The exact same word "shall" also appears in the Statute 1501 referenced above. Will a similar interpretation be applied there as well? If not, which interpretation is correct? **Some reasonable standard and consistency must be evident, otherwise any written law can be contorted to mean anything, with the resulting consequence that it will effectively mean nothing.**

This is why many of the State and Municipal Officials that we contacted expressed the interest to be kept informed of the status and handling of our Formal Complaint, because it is a matter which is in the interest of their constituents, it is in the public interest, and it is a matter which should be handled in a manner that is fair, impartial, and objective.

18. DLC Counsel's statement: Duquesne Light has not yet installed a smart meter at the Property.

Complainants (Our) Response:

18. No response is necessary.

In conclusion, the Complainants (we) aver that we have, with this Response to Respondent's Answer and New Material and our filed November 29, 2016 and December 19, 2016 Responses to Respondent's original and Corrected Preliminary Objections, adequately addressed all of Respondent Duquesne Light's Objections, Answers, and New Matters filed to date by their Counsel. Though much of the Respondent's Objections, Answers, and New Matters appeared to us to be redundant and somewhat repetitious, we addressed each section in turn. And, we might add that we do not envy the Commission having to read through all of this complicated, detailed, and wordy material, because it required a major effort on our part to formulate a complete and comprehensive response.

In our written responses in this filing, and our November 29, 2016, and our December 19, 2016 response filings, and our Formal Complaint, we have cited,

(1) the first and foremost deployment provision of Act 129, the voluntary Opt-In *provision*, *Provision* § 2807 (f) (2) (i),

(2) the documented and clearly stated intention of the General Assembly that created HB 2200 and Act 129,

(3) Section 1501 of the Public Utility Code explicitly requiring the EDCs to provide equipment and service that is proper for the accommodation, convenience, and safety of its patrons,

(4) the Commission's long-standing policy of settlements with regards to 52 Pa. Code § 5.231.

(5) relevant precedents and rulings by the PUC in support of our position and Formal Complaint,

(6) the special circumstances related to our age and physical condition,

(7) the credible threat of harm that has been established in the more recent studies associated with Smart Meters, the Smart Grid, and the perpetual pulsed radiation that they emit,

(8) and, the simple fact that, even accepting as valid (which we do not) that the wording of § 2807 (f) (2) (iii) specifies a state-wide mandatory universal 15 year deployment deadline starting from the enactment of the law in 2008, our current meter would not actually and normally be due for replacement until near the year 2023. As such, and recognizing the further unassailable fact that we have not requested or agreed to the immediate and accelerated installation of a Smart Meter, until that "deadline" occurs, we aver that we are not currently in violation of any aspect of Act 129 no matter how it is interpreted.

WHEREFORE, considering these facts along with the many other relevant factors we have presented in our Formal Complaint, in this written response, and in our previously filed November 29, 2016 and December 19, 2016 written responses to both the Respondent's original Preliminary Objections and the Corrected Preliminary Objections, Complainants Michele Hriadil and Francis Hriadil respectfully request that the Commission deny Duquesne Light Company's Answer and New Matter, as has occurred in other similar complaints before the Commission.

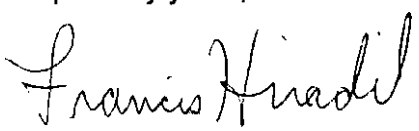
Further, in light of all that we have presented on this matter in our Formal Complaint and our filed responses, we respectfully request that the Commission grant a Summary Judgment in our favor, and against the Respondent, indicating that Complainants (we)

- have not requested or agreed to the installation of a Smart Meter,
- are not required to have a Smart Meter installed,
- are at risk of a credible threat of harm from a Smart Meter,
- are not in violation of Act 129, and the expressed intent of the Legislature,
- and are not currently in violation of any deployment timeline,

no matter how Act 129 is interpreted.

We reiterate that we believe that we have adequately addressed each of the Respondent's Objections, Answers, and New Matters, in turn, that have been filed to date; that we have established that our Formal Complaint is valid and has merit, and is neither frivolous nor a waste of everyone's time and resources; that we have met the criteria for legal sufficiency, we have established a cognizable claim, we have provided sufficient evidence that this is a matter that is in the public interest; and finally that we have established that Duquesne Light has no basis to ask for our complaint to be dismissed and our requested relief to be denied.

Respectfully yours,



Francis Hriadil
(412) 779-3314
331 Shady Ridge Drive
Monroeville, PA 15146
January 9, 2017

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MICHELE HRIADIL and FRANCIS HRIADIL,	:	
Complainant,	:	
vs.	:	No: C-2016-2571726
DUQUESNE LIGHT COMPANY,	:	
Respondent.	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing document upon the participant listed below in accordance with the requirements of 52 PA. Code § 1.54 (relating to service by a participant):

Jeremy V Farrell, Esquire
Lauren N. Rulli, Esquire
1500 One PPG Place
Pittsburgh, PA 15222
(412) 594-5619 (Fax)

Counsel for Respondent, Duquesne Light Company

Dated this 9th day of January, 2017

Francis Hriadil

Michele and Francis Hriadil
331 Shady Ridge Drive
Monroeville, PA 15146

(412) 779-3314
hriadil@attglobal.net

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MICHELE HRIADIL and
FRANCIS HRIADIL,

Complainant,

vs.

DUQUESNE LIGHT COMPANY,

Respondent.

No: C-2016-2571726

Complainants Response to

ANSWER AND NEW MATTER TO FORMAL COMPLAINT

Filed by Michele and Francis Hriadil

hriadil@attglobal.net
(412) 779-3314
331 Shady Ridge Drive
Monroeville, PA 15146

COMPLAINANTS RESPONSE to ANSWER AND NEW MATTER TO FORMAL COMPLAINT

TO: RESPONDENT'S GENERAL COUNSEL, JEREMY V FARRELL, ESQUIRE, AND LAUREN N RULLI, ESQUIRE .

HERE ARE THE 7 EXHIBITS REFERENCED IN OUR WRITTEN RESPONSE TO THE ANSWER AND NEW MATTER OF RESPONDENT DUQUESNE LIGHT COMPANY. THEY HAVE BEEN SUBMITTED ALONG WITH OUR WRITTEN RESPONSE TO YOU PER THE AGREED UPON DEADLINE OF JANUARY 11, 2017.

Francis Hriadil
January 9, 2017

[http://www.crn.com/slide-shows/security/300081491/the-10-biggest-data-breaches-of-2016-so-far.htm]

The 10 Biggest Data Breaches Of 2016 (So Far)

By Sarah Kuranda on July 28, 2016, 10:02 am EDT

No One Is Immune

According to the **Identity Theft Resource Center**, there have already been 522 reported breaches as of the middle of July, exposing more than 13 million records (that number does not include the majority of breaches that did not report number of records affected). While we have yet to see a mega-breach that will define the year, as the Office of Personnel Management, Target and Sony have in years past, trends have emerged in the year so far, including multiple attacks targeting W-2 information, federal agencies, health-care organizations and telecom providers. Take a look at 10 of the biggest and most impactful breaches of the year so far.

1. Centene

Luck didn't improve much for the health-care sector in 2016, following up on a tough year for data breaches. In January, multi-line health-care enterprise Centene announced that 950,000 members had potentially been impacted by a data breach. The breach was caused by the loss of six hard drives that included personal health information on members who had had lab services between 2009 and 2015. It also included names, addresses, dates of birth, Social Security numbers, ID numbers and other health information, the company said. It is not clear if the device was encrypted.

2. Federal Bureau of Investigation, Department of Homeland Security

In February, hackers threatened to, and ultimately did, dump the records of nearly 30,000 FBI and Department of Homeland Security workers. The records included personal information on around 9,000 DHS employees and around 20,000 FBI employees, including names, titles and contact information. The hacker, which first reached out to Motherboard with the files, claimed he had access to even more files, totaling 200 GB.

3. Seagate

Seagate was one of the many victims of a W-2 attack this tax season, with security reporter Krebs reporting in March that the data storage company had been breached of all of its W-2 tax documents. The leak included documents on all current and past employees, Krebs said in a blog post about the breach, and included Social Security numbers, salaries and other data. The breach was the result of a successful phishing scam, where "an employee believed the phishing email was a legitimate internal company request," a company spokesperson said at the time.

4. Internal Revenue Service

At the height of tax season, the Internal Revenue Service announced that it had been hit by a massive data breach, exposing the information of more than 700,000 individuals. Hackers accessed the information, including Social Security numbers and other personal information, through the IRS' "Get Transcript" program, which was created to allow taxpayers to check their history online. The hackers potentially accessed the accounts using data from breaches of IRS-approved tax preparers or other online accounts, the IRS said at the time. The IRS first reported the breach in May 2015, saying it affected 114,000 accounts. That number was expanded in February of this year to include as many as 724,000 accounts affected.

5. LinkedIn, MySpace

Within the space of two weeks in May, a hacker called Peace posted data on the dark web to sell, which allegedly included information on 167 million LinkedIn accounts and, in the following week, 360 million emails and passwords for MySpace users. The LinkedIn leak expands on the 6.5 million encrypted passwords that were posted after a LinkedIn breach in 2012. Motherboard first reported the data leaks. The credentials, which

included user names, passwords and emails, were largely from former breaches, according to LeakedSource, a paid hacked data search engine.

6. 21st Century Oncology
In March, 21st Century Oncology, a Fort Myers, Fla.-based cancer care provider, announced that a data breach had exposed the information of 2.2 million patients based across all 50 states and internationally. Hackers broke into a company database in October, the company said, accessing personal information of patients, including names, Social Security numbers, physician names, diagnosis, treatment data and insurance information. The company said it had "no indication that the information has been misused in any way."

7. Office of Child Support Enforcement
In April, a laptop and portable hard drives containing personal information was stolen from the Office of Child Support Enforcement in Washington. The devices were stolen by intruders that likely used a key from a disgruntled former employee, police said at the time. The devices contained personal information on as many as 5 million individuals, including Social Security numbers, birth dates, addresses and phone numbers. The breach comes a year after the federal government announced a massive data breach affecting the Office of Personnel Management, exposing the personal information of more than 21 million federal employees and contractors.

8. Federal Deposit Insurance Corporation
While not the largest breach of the year so far by number of records, the June announcement of a data breach at the Federal Deposit Insurance Corporation is particularly concerning. A report issued by the House Committee on Science, Space and Technology announced that Chinese hackers had access to the department's systems from 2010 to 2013 though back-end malware that had been installed on workstations and servers. The announcement came after the Inspector General started investigating the FDIC for another breach, which occurred in 2015, and found the FDIC had failed to report the breach. In May, the FDIC had retroactively reported five other breaches, affecting a total of 160,000 individuals. The breach brings up concerns around breach reporting, as well as nation-state attacks from overseas actors such as China.

9. Verizon Enterprise Services
After a report emerged from security journalist Krebs in March, Verizon Enterprise Services announced that it had been the victim of a data breach that affected more than a million of its enterprise customers. The breach allowed hackers to collect information on an estimated 1.5 million enterprise clients, including basic contact information. Verizon said no customer proprietary network information or other data was accessed. It is not clear what the exact cause of the breach was, but Verizon said it had recently found and fixed a vulnerability in its enterprise client portal used by the hacker to collect the information. Partners at the time said the breach highlighted concerns around telecom providers, who pose an attractive target to hackers as they hold an extensive amount of customer information.

RECEIVED

JAN 09 2017

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

DUQUESNE LIGHT COMPANY
Smart Meter Procurement and Installation Plan

Docket No. M-2009-2123948

August 14, 2009

Duquesne Light
Our Energy...Your Power

EXHIBIT C

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

DUQUESNE LIGHT COMPANY	:	
Petition for Approval of Smart	:	**Docket No. M-2009-2123948**
Meter Procurement and	:	
Installation Plan	:	

DIRECT TESTIMONY OF
Ruth Ann DeLost

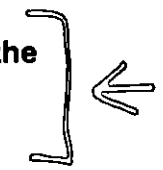
Dated: August 14, 2009

A. Yes. Because of the 99.9% actual reads for Customer Billing the EGSs start out with a clean read on switching and are provided with more actual monthly information on the Eligibility List. The Daily reads are utilized to populate the PJM eSchedules so the EGS has a more accurate preliminary bill thus minimizing reconciliation. Because Duquesne has daily reads on the majority of our Residential and Small C & I accounts and we have hourly interval reads on the Large C & I accounts, Duquesne is able to calculate the customer's 1CP and 5CP more accurately. Finally the AMR system has played an essential role in supporting Duquesne's shopping environment as approximately 50% of our zonal load is shopped.

Q. Has Duquesne achieved operational benefits by implementing the current AMR system?

A. Yes. Duquesne eliminated over 90% of our meter reading work force. Our Customer Service Representatives have more timely information to address customer inquiries. Because Pittsburgh is a college town with at least 3 major universities, and several colleges, Duquesne must support an enormous amount of moves. Our AMR system has provided the means to automatically handle service starts and ends. Finally the hourly interval and daily information is utilized for daily forecast and day after PJM settlement and reconciliation.

Q. Does Duquesne expect to achieve significant cost savings with the implementation of Smart Meters?



A. No. The Company has already realized significant operational savings through implementation of the current AMR system. While the Company does not anticipate any meaningful additional operational savings by replacing the existing AMR system with smart meter technology, as we move through the process of system design, vendor selection and testing, we will be better equipped to identify other cost saving opportunities.

Q. Does any portion of Duquesne's current meter infrastructure meet the minimum legislative requirements of Smart Meter technology?

A. Yes. The 900 meters on our large C & I customers with demand > 300 kw meet the minimum smart meter requirements of the legislation and the additional capabilities listed in the order with the exception of remote connect disconnect, which cannot be done with a poly phase meter even with the newest smart meters, and, while Duquesne is compliant with the nationally recognized ANSI standards C12.19 and C12.21, our current meters are not C12.22 compliant.

Q. Does the company anticipate benefits from the current AMR environment to support the energy efficiency and conservation and demand response plan?

A. Partially. Because we procure hourly interval reads on our Large C & I customers they can more easily participate in PJM's DSR.

BRITISH COLUMBIA UTILITIES COMMISSION

IN THE MATTER OF THE UTILITIES COMMISSION ACT
R.S.B.C. 1996, CHAPTER 473

And

Re: FortisBC Energy Inc.
Application for a Certificate of Public Convenience and Necessity for the Advanced Metering Infrastructure Project

Kelowna, B.C.
March 11, 2013

PROCEEDINGS

BEFORE:

L. Kelsey,	**Commission Chair / Panel Chair**
N. MacMurchy,	**Panel Member**
D. Morton,	**Panel Member**

VOLUME 7

Allwest Reporting Ltd.
#1200 - 1125 Howe Street
Vancouver, B.C. V6Z 2K8

MR. FLYNN: Q: Thank you. On average, how many pulses per day would that transmitter emit?

DR. SHKOLNIKOV: A: I think the number was filed as interrogatory, and the average is approx I believe 1,286 per bursts of transmission per day.

MR. WARREN: A: 1268.

DR. SHKOLNIKOV: A: Oh, 1268.

MR. FLYNN: Q: Why is that different than in California where it's 14,000 times per day on average?

MR. WARREN: A: We don't know. They use a different system at PG&E, which I think was the reference that you gave. So it's not the Itron OpenWay system.

MR. FLYNN: Q: Okay. So your then is what, please, for the average meter pulsing per day?

MR. WARREN: A: 1268 was provided in IR responses, an average.

MR. FLYNN: Q: What's the peak amount, the peak number, the maximum number they'll pulse per day?

MR. WARREN: A: We don't have that information that I'm aware of, but we did have the -- we did file the Itron White Paper that shows what the maximum duty cycle is, which would show what the total time of all of those different transmissions would be at maximum. Which is about 0.58 percent duty cycle.

Proceeding Time 11:04 a.m. T25

MR. FLYNN: Q: Were you aware that in a California

California Public Utility Commission that their transmitter is going all the time. There was no lag.

So I'm trying to determine how active is this LAN. Never mind the customer uses data --

THE CHAIRPERSON: Okay, let's just have the question, please.

DR. SHKOLNIKOV: A: Not getting into the details of Silver Spring deployment, the numbers for how active the device is a function of -- they were introduced as an exhibit -- is this the correct exhibit? There was an OpenWay exhibit that listed the distribution and the -- we've summarized it in the E*ponent Report, where the smart -- the advanced meter is active 0.06 percent of the time on average, which is about one-fifth of a second in a six minute period. And then it -- the maximum observed in the field study they have done is 0.06 percent, and the maximum theoretical duty cycle is about 5 percent of the time. So those are the numbers.

MR. WARREN: A: So we've referred to that document a few times. It's called "An examination of Itron OpenWay wireless transmissions in a 24-hour duty cycle", and it is in Appendix BCSEA IR 155.5.

Proceeding Time 11:19 a.m. T28

MR. FLYNN: Mr. Chair, I would like to have the Commission note that there's strong disagreement

distance to the house.

MR. WARREN: A: And from a practical perspective, like, we say that like if you're talking about the collectors that have the cellular communications card in them, then they would receive signals wherever you would receive a cell phone signal. So, that's the only place they can be used.

MR. FLYNN: Q: Well, no, the gain -- the antenna will have the same gain, like, 2.2 gig, or dB?

MR. WARREN: A: I'm not sure if it would have exactly the same gain as a cellular handset.

MR. FLYNN: Q: In a typical -- well, let's discuss mod appliances. How many smart appliances do you envision each home having?

MR. WARREN: A: So, I think we talked about this on a previous day, that we're estimating that over time that we're hoping that 30 percent of -- or our best guess is that 30 percent of homes will have an in-home display.

MR. FLYNN: Q: But in one home, how many appliances do you envisage?

MR. WARREN: A: I think we talked about that as well. We haven't made any projections.

MR. FLYNN: Q: Well, that's terribly important, Mr. Warren, simply because the more appliances, the more radiation. I'm trying to get a handle on how much

> Itron white paper

Wireless Transmissions:

An Examination of OpenWay Smart Meter Transmissions in a 24-Hour Duty Cycle

Jeff French
Applications Engineer

Mike Belanger
Product Line Manager

Itron

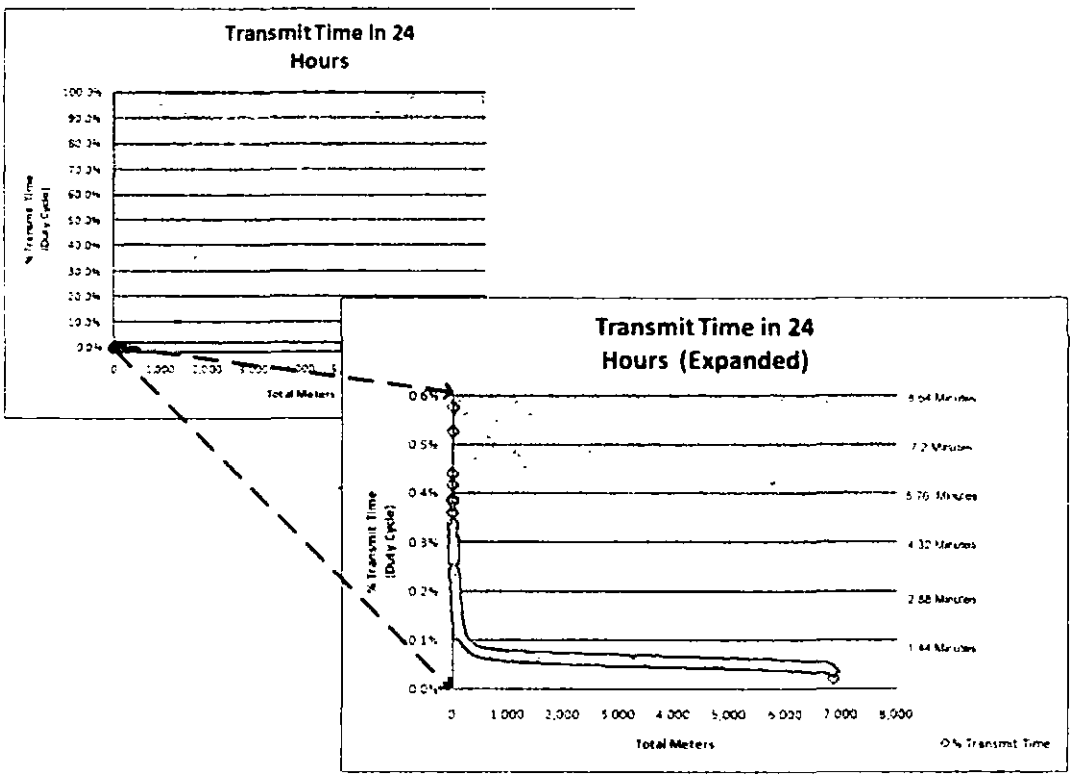


Fig. 2 Percentage of Transmit Time

Figure 2 represents a scatter plot of all meters' transmit times. Because the meters transmit for such a small percentage of the time, the first view appears as a solid blue line resting on the x-axis (below 1%). In the expanded view it is possible to see the maximum daily duty cycle is less than 0.6% (transmit time less than 8.64 minutes/day). This view also shows that 98% of the meters have a daily duty cycle of less than 0.1% (transmit time less than 1.44 minutes/day).

	Duty Cycle	Time
Mean	0.06%	53.14 seconds per day
Maximum	0.58%	497.8 seconds per day
Minimum	0.02%	18.31 seconds per day
Median	0.06%	49.81 seconds per day

Fig. 3 Transmit Time Statistics

Itron

The table above (*Figure 3*) shows that meter emission times vary, but even the maximum transmission represents less than 1% of the 24-hour period. Median and Mean (or average) times are relatively close together, which indicates the absence of many meters on the extreme ends of the range.

The sample period that was selected represents a day of higher-than-normal activity for the sample network. During this time, in addition to the two normally scheduled daily meter data reads, there were two crucial updates being transmitted to every endpoint on the network—one for an adjustment for Daylight Savings Time and the other was a crucial firmware update. In a typical day with no updates taking place, the numbers would more than likely be even lower.

Conclusion

OpenWay smart meters are advanced, highly-efficient devices. They are able to communicate a large amount of metering and event data in short bursts throughout a 24-hour period (each transmit burst is less than 150mSec). The worst case meter in the sample population was essentially silent (not transmitting) for over 99.40% of the day while the average meter was silent 99.94% of the day. In terms of FCC regulations for Maximum Permissible Exposure (MPE) limits, the worst case meter was less than 0.09% of the limit mandated by the FCC (0.00051 mW/cm^2 vs 0.61 mW/cm^2) with the average meter less than 0.009% of the FCC limit (0.000053 mW/cm^2 vs 0.61 mW/cm^2). [With the duty cycle is accounted for, See *Note #3*]

This empirical field data further refines our estimations for maximum duty cycle of Itron OpenWay meters. When accounting for the variations in cell size and data requests, our expectations for maximum duty cycle are 1% (14.4 min/day). The previous estimate prior to this field data was 5% duty cycle.

Itron takes all concerns about RF exposure very seriously and continuously strives to ensure its products meet or exceed FCC guidelines and regulations. In the case of OpenWay smart meters, Itron dramatically exceeds these mandates with a product that generates only a very small fraction of the FCC limits for RF exposure.

Note #1:

The sample meter data was taken from one of Itron's large-scale, operational network customers. It is representative of the OpenWay smart grid solution. There were 6,865 meters in the population sample, spread across 10 cells (average cell size of ~687 meters). The data for the Cell Masters is included in this analysis.

REQUESTOR NAME: **BC Sustainable Energy Association**
INFORMATION REQUEST ROUND NO: **1**
TO: **FortisBC Inc. (FBC)**
DATE: **October 26, 2012**
PROJECT NO: **3698682**
APPLICATION NAME: **Application for a Certificate of Public Convenience and Necessity (CPCN) for the Advanced Metering Infrastructure (AMI) Project**

Topic: Version of ZigBee

1.1 FortisBC notes that it "*is proposing that the advanced meters include HAN functionality at implementation*"[1]. For the HAN, FortisBC notes that "*initially the meters will use ZigBee Smart Profile v1.1 . . . also support Zigbee Smart Energy v2.0*".

1.1.1 Please explain why the meters need to support two different versions of ZigBee.

1.1.2 Will the two versions be running concurrently in the meter, or will they need to be switched (if so, how will the switch be done)?

1.1.3 Can an In-Home Display using v1.1 communicate to a meter running with v2.0?

1.1.4 Can an In-Home Display using v2.0 communicate to a meter running with v1.1?

1.1.5 It is noted that v2.0 "*. . . is being developed . . .*"[2].

1.1.5.1 When is v2.0 expected to be complete, what hurdles need to be overcome before it is complete and what are the risks?

1.1.5.2 How can v2.0 be delivered if it is not yet complete?

1.1.5.3 What testing has been done for v2.0 or is expected before it is considered complete? Does FortisBC plan any pilot testing?

1.1.6 Whose responsibility is it to work out the technical issues for different versions – FortisBC/Itron or the suppliers of the In-Home Display?

1.1.7 How will different versions of ZigBee affect the end customer?

Topic: BC SMI Regulation

1.2 FortisBC states: "*the Smart Meters and Smart Grid Regulation (2010) details the prescribed requirements of 'Smart Grid' and 'Smart Meter'*". Please confirm that the reference is to the Smart Meters and Smart Grid Regulation, B.C. Reg.

[1] Exhibit B-6, BCUC IR 30.1 Response, Page 47, Line 30
[2] Exhibit B-1, Section 4.1.1, Page 43, Line 14

54.2 Has Exponent, Inc. provided reports on radiofrequency exposure and health in relation to advanced metering infrastructure for clients other than FBC? If so, please provide the number of such reports by year.

54.3 Please provide a copy of any other report by Exponent on RF exposure and health in relation to the Itron AMI7 meter.

55.0 Topic: Health
Reference: Exhibit B-1, Appendix C-5, Status of Research on Radiofrequency Exposure and Health in Relation to Advanced Metering Infrastructure, (Sub-)Appendix A, Technical Memorandum, Advanced Metering Infrastructure Exposure Assessment, p.A-2 (pdf p.564 of 747)

"In the 900 MHz band, the signal power from the Itron AMI7 meter (FCC ID SK9AMI7) is 689 milliwatts (mW) for an antenna gain of 1.66. Under typical use, the duty cycle is between 0.02% and 0.58% with a mean of 0.06%. The maximum duty cycle under all circumstances is 5%.20" [underline added]

55.1 Please confirm that the Itron AMI7 meter (FCC ID SK9AMI7) is the model of advanced meter in FBC's AMI Project. If not, please explain.

55.2 Please confirm that the characteristics of the Itron AMI7 meter described in the passage quoted above accurately describe the characteristics of the advanced meters in the configuration and usage that FBC proposes in the AMI Project.

55.3 Please describe the term "duty cycle" in this context.

55.4 What does a duty cycle "between 0.02% and 0.58% with a mean of 0.06%" and a maximum of "5%" mean in terms of seconds or minutes per hour or per day?

55.4.1 Does this duty cycle include all data from the meter, including data for supporting the mesh network and other network traffic?

55.5 Please explain why the duty cycle is given as a range. Does the duty cycle range apply to each specific installed meter, or to the fleet of meters? Will some installed meters be at the low end of the range while others are at the high end of the range? What factors determine the length of the duty cycle for a particular meter; for the fleet of meters?

55.6 In what circumstances does the maximum duty cycle of 5% occur? Would this occur with a specific installed meter, or with the fleet of meters? How frequently does the maximum duty cycle of 5% occur?

55.7 Please define the mean duty cycle. Is it a weighted average? Does the mean duty cycle of 0.06% include the expected occurrences of the maximum duty cycle?

55.8 Please provide a copy of "Analysis of Radio Frequency Exposure Associated with Itron OpenWay® Communications Equipment" by Itron, Inc. and "Wireless Transmissions: An Examination of OpenWay Smart

International Agency for Research on Cancer

World Health Organization

PRESS RELEASE
N° 208

31 May 2011

IARC CLASSIFIES RADIOFREQUENCY ELECTROMAGNETIC FIELDS AS POSSIBLY CARCINOGENIC TO HUMANS

Lyon, France, May 31, 2011 -- The WHO/International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields as possibly carcinogenic to humans (Group 2B), based on an increased risk for glioma, a malignant type of brain cancer[1], associated with wireless phone use.

Background

Over the last few years, there has been mounting concern about the possibility of adverse health effects resulting from exposure to radiofrequency electromagnetic fields, such as those emitted by wireless communication devices. The number of mobile phone subscriptions is estimated at 5 billion globally.

From May 24–31 2011, a Working Group of 31 scientists from 14 countries has been meeting at IARC in Lyon, France, to assess the potential carcinogenic hazards from exposure to radiofrequency electromagnetic fields. These assessments will be published as Volume 102 of the IARC *Monographs*, which will be the fifth volume in this series to focus on physical agents, after Volume 55 (Solar Radiation), Volume 75 and Volume 78 on ionizing radiation (X-rays, gamma-rays, neutrons, radio-nuclides), and Volume 80 on non-ionizing radiation (extremely low-frequency electromagnetic fields).

The IARC Monograph Working Group discussed the possibility that these exposures might induce long-term health effects, in particular an increased risk for cancer. This has relevance for public health, particularly for users of mobile phones, as the number of users is large and growing, particularly among young adults and children.

The IARC Monograph Working Group discussed and evaluated the available literature on the following exposure categories involving radiofrequency electromagnetic fields:

- occupational exposures to radar and to microwaves;
- environmental exposures associated with transmission of signals for radio, television and wireless telecommunication; and
- personal exposures associated with the use of wireless telephones.

International experts shared the complex task of tackling the exposure data, the studies of cancer in humans, the studies of cancer in experimental animals, and the mechanistic and other relevant data.

[1] 237 913 new cases of brain cancers (all types combined) occurred around the world in 2008 (gliomas represent 2/3 of these). Source: Globocan 2008

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Results

The evidence was reviewed critically, and overall evaluated as being *limited*[2] among users of wireless telephones for glioma and acoustic neuroma, and *inadequate*[3] to draw conclusions for other types of cancers. The evidence from the occupational and environmental exposures mentioned above was similarly judged inadequate. The Working Group did not quantitate the risk; however, one study of past cell phone use (up to the year 2004), showed a 40% increased risk for gliomas in the highest category of heavy users (reported average: 30 minutes per day over a 10-year period).

Conclusions

Dr Jonathan Samet (University of Southern California, USA), overall Chairman of the Working Group, indicated that "the evidence, while still accumulating, is strong enough to support a conclusion and the 2B classification. The conclusion means that there could be some risk, and therefore we need to keep a close watch for a link between cell phones and cancer risk."

"Given the potential consequences for public health of this classification and findings," said IARC Director Christopher Wild, "it is important that additional research be conducted into the long-term, heavy use of mobile phones. Pending the availability of such information, it is important to take pragmatic measures to reduce exposure such as hands-free devices or texting. "

The Working Group considered hundreds of scientific articles; the complete list will be published in the Monograph. It is noteworthy to mention that several recent in-press scientific articles[4] resulting from the Interphone study were made available to the working group shortly before it was due to convene, reflecting their acceptance for publication at that time, and were included in the evaluation.

A concise report summarizing the main conclusions of the IARC Working Group and the evaluations of the carcinogenic hazard from radiofrequency electromagnetic fields (including the use of mobile telephones) will be published in The Lancet Oncology in its July 1 issue, and in a few days online.

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[2] '***Limited evidence of carcinogenicity***': A positive association has been observed between exposure to the agent and cancer for which a causal interpretation is considered by the Working Group to be credible, but chance, bias or confounding could not be ruled out with reasonable confidence.

[3] '***Inadequate evidence of carcinogenicity***': The available studies are of insufficient quality, consistency or statistical power to permit a conclusion regarding the presence or absence of a causal association between exposure and cancer, or no data on cancer in humans are available.

[4] a. 'Acoustic neuroma risk in relation to mobile telephone use: results of the INTERPHONE international case-control study' (the Interphone Study Group, in Cancer Epidemiology, *in press*)

b. 'Estimation of RF energy absorbed in the brain from mobile phones in the Interphone study' (Cardis et al., Occupational and Environmental Medicine, *in press*)

c. 'Risk of brain tumours in relation to estimated RF dose from mobile phones – results from five Interphone countries' (Cardis et al., Occupational and Environmental Medicine, *in press*)

d. 'Location of Gliomas in Relation to Mobile Telephone Use: A Case-Case and Case-Specular Analysis' (American Journal of Epidemiology, May 24, 2011. [Epub ahead of print].

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Link to the **audio file** posted shortly after the briefing:
http://terrance.who.int/mediacentre/audio/press_briefings/

About IARC

The International Agency for Research on Cancer (IARC) is part of the World Health Organization. Its mission is to coordinate and conduct research on the causes of human cancer, the mechanisms of carcinogenesis, and to develop scientific strategies for cancer control. The Agency is involved in both epidemiological and laboratory research and disseminates scientific information through publications, meetings, courses, and fellowships.

If you wish your name to be removed from our press release e-mailing list, please write to com@iarc.fr.

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IARC CLASSIFIES RADIOFREQUENCY ELECTROMAGNETIC FIELDS AS POSSIBLY CARCINOGENIC TO HUMANS

ABOUT THE IARC MONOGRAPHS

What are the IARC Monographs?

The *IARC Monographs* identify environmental factors that can increase the risk of human cancer. These include chemicals, complex mixtures, occupational exposures, physical and biological agents, and lifestyle factors. National health agencies use this information as scientific support for their actions to prevent exposure to potential carcinogens. Interdisciplinary working groups of expert scientists review the published studies and evaluate the weight of the evidence that an agent can increase the risk of cancer. The principles, procedures, and scientific criteria that guide the evaluations are described in the Preamble to the IARC Monographs.

Since 1971, more than 900 agents have been evaluated, of which approximately 400 have been identified as carcinogenic or potentially carcinogenic to humans.

Definitions

Group 1: The agent is *carcinogenic to humans*.

This category is used when there is *sufficient evidence of carcinogenicity* in humans. Exceptionally, an agent may be placed in this category when evidence of carcinogenicity in humans is less than *sufficient* but there is *sufficient evidence of carcinogenicity* in experimental animals and strong evidence in exposed humans that the agent acts through a relevant mechanism of carcinogenicity.

Group 2.

This category includes agents for which, at one extreme, the degree of evidence of carcinogenicity in humans is almost *sufficient*, as well as those for which, at the other extreme, there are no human data but for which there is evidence of carcinogenicity in experimental animals. Agents are assigned to either Group 2A (*probably carcinogenic to humans*) or Group 2B (*possibly carcinogenic to humans*) on the basis of epidemiological and experimental evidence of carcinogenicity and mechanistic and other relevant data. The terms *probably carcinogenic* and *possibly carcinogenic* have no quantitative significance and are used simply as descriptors of different levels of evidence of human carcinogenicity, with *probably carcinogenic* signifying a higher level of evidence than *possibly carcinogenic*.

Group 2A: The agent is *probably carcinogenic to humans*.

This category is used when there is *limited evidence of carcinogenicity* in humans and *sufficient evidence of carcinogenicity* in experimental animals. In some cases, an agent may be classified in this category when there is *inadequate evidence of carcinogenicity* in humans and *sufficient evidence of carcinogenicity* in experimental animals and strong evidence that the carcinogenesis is mediated by a mechanism that also operates in humans. Exceptionally, an agent may be classified in this category solely on the basis of *limited evidence of carcinogenicity* in humans. An agent may be assigned to this category if it clearly belongs, based on mechanistic considerations, to a class of agents for which one or more members have been classified in Group 1 or Group 2A.

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Group 2B: The agent is *possibly carcinogenic to humans*.

This category is used for agents for which there is *limited evidence of carcinogenicity* in humans and less than *sufficient evidence of carcinogenicity* in experimental animals. It may also be used when there is *inadequate evidence of carcinogenicity* in humans but there is *sufficient evidence of carcinogenicity* in experimental animals. In some instances, an agent for which there is *inadequate evidence of carcinogenicity* in humans and less than *sufficient evidence of carcinogenicity* in experimental animals together with supporting evidence from mechanistic and other relevant data may be placed in this group. An agent may be classified in this category solely on the basis of strong evidence from mechanistic and other relevant data.

Group 3: The agent is *not classifiable as to its carcinogenicity to humans*.

This category is used most commonly for agents for which the evidence of carcinogenicity is *inadequate* in humans and *inadequate* or *limited* in experimental animals.

Exceptionally, agents for which the evidence of carcinogenicity is *inadequate* in humans but *sufficient* in experimental animals may be placed in this category when there is strong evidence that the mechanism of carcinogenicity in experimental animals does not operate in humans.

Agents that do not fall into any other group are also placed in this category.

An evaluation in Group 3 is not a determination of non-carcinogenicity or overall safety. It often means that further research is needed, especially when exposures are widespread or the cancer data are consistent with differing interpretations.

Group 4: The agent is probably not carcinogenic to humans.

This category is used for agents for which there is *evidence suggesting lack of carcinogenicity* in humans and in experimental animals. In some instances, agents for which there is *inadequate evidence of carcinogenicity* in humans but *evidence suggesting lack of carcinogenicity* in experimental animals, consistently and strongly supported by a broad range of mechanistic and other relevant data, may be classified in this group.

Definitions of evidence, as used in IARC Monographs for studies in humans

The evidence relevant to carcinogenicity from studies in humans is classified into one of the following categories:

Sufficient evidence of carcinogenicity: The Working Group considers that a causal relationship has been established between exposure to the agent and human cancer. That is, a positive relationship has been observed between the exposure and cancer in studies in which chance, bias and confounding could be ruled out with reasonable confidence. A statement that there is *sufficient evidence* is followed by a separate sentence that identifies the target organ(s) or tissue(s) where an increased risk of cancer was observed in humans. Identification of a specific target organ or tissue does not preclude the possibility that the agent may cause cancer at other sites.

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Limited evidence of carcinogenicity: A positive association has been observed between exposure to the agent and cancer for which a causal interpretation is considered by the Working Group to be credible, but chance, bias or confounding could not be ruled out with reasonable confidence.

Inadequate evidence of carcinogenicity: The available studies are of insufficient quality, consistency or statistical power to permit a conclusion regarding the presence or absence of a causal association between exposure and cancer, or no data on cancer in humans are available.

Evidence suggesting lack of carcinogenicity: There are several adequate studies covering the full range of levels of exposure that humans are known to encounter, which are mutually consistent in not showing a positive association between exposure to the agent and any studied cancer at any observed level of exposure. The results from these studies alone or combined should have narrow confidence intervals with an upper limit close to the null value (e.g. a relative risk of 1.0). Bias and confounding should be ruled out with reasonable confidence, and the studies should have an adequate length of follow-up. A conclusion of *evidence suggesting lack of carcinogenicity* is inevitably limited to the cancer sites, conditions and levels of exposure, and length of observation covered by the available studies. In addition, the possibility of a very small risk at the levels of exposure studied can never be excluded.

In some instances, the above categories may be used to classify the degree of evidence related to carcinogenicity in specific organs or tissues.

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Expert Report of Andrew A Marino

August 8, 2016

This report was prepared by Andrew A. Marino at the request of Stephen G. Harvey, counsel for Maria Povacz, Laura Sunstein Murphy, Diane and Stephen Van Schoyck, Cynthia Randall, and Paul Albrecht as Complainants in litigation before the Pennsylvania Utility Commission with PECO as the Respondent. For convenience of presentation on complex subject matter, the report is presented in question and answer format.

Purpose

Q. What is the purpose of your report?

A. My first purpose is to express my professional opinion that there is a basis in established science for Complainants' concern regarding risks to human health caused by man-made electromagnetic energy in the environment, including the type of electromagnetic energy emitted by smart meters, and to describe the scientific basis of my opinion with particularly.

My second purpose is to express and explain my professional opinion that it would be unreasonable to involuntarily and chronically expose the Complainants to the electromagnetic energy emitted by smart meters. Scientific evidence indicates that the neurological syndrome of electromagnetic hypersensitivity exists. There is a reasonable basis to believe that the symptomatology of the Complainants and its relation to smart-meter electromagnetic energy is factual. There is a basis in established science to

support the Complainants' concerns that future exposure to smart-meter energy will worsen their already precarious medical conditions. Ample scientific evidence indicates that the aforementioned exposure would be a risk to the health of the Complainants.

Qualifications

Q. What are your qualifications to express these opinions.

A. I earned a PhD in biophysics in 1968 and a JD in 1974. My curriculum vitae is attached as Exhibit 1. Briefly, from 1964 to 2014, I worked full-time teaching and performing research in the area of experimental biology that deals with the role of natural electromagnetic energy in animals and human beings, and with the effects of man-made electromagnetic energy on animals and human beings. I retired from those duties in 2014 and began working on developing commercial technology capable of obtaining clinical diagnostic information from measurements of the electroencephalogram, which is the natural electromagnetic energy emitted by the brain.

Q. Where did you conduct your research on electromagnetic energy?

A. For the first sixteen years of my career, at the Veterans Administration hospital in Syracuse, New York. For the next thirty-three years, my research laboratory was in the LSU medical school in Shreveport Louisiana, where I served full-time as a professor in the departments of orthopedic surgery, neurology, and cellular biology and anatomy.

Q. Regarding your teaching responsibilities, what did you teach, and to whom?

A. To medical students, I taught musculoskeletal medicine, the scientific basis of medicine, experimental biology, human research methods, and the legal-ethical responsibilities of physicians. To graduate students I taught the cognitive structure of science, which is the framework within which researchers make valid observations and attach meaning to them, and I taught particular techniques of experimental biology. To medical residents and medical fellows I taught specialized subjects, for example, methods of analysis of the electrical activity of the brain, and general subjects, for example how to formulate a clinically relevant hypothesis and then answer it by means of an animal or human experiment.

Q. What area of science is relevant to the issue of health risks posed by smart meters?

A. The general area is experimental biology, by which I mean the scientific method for finding reliable knowledge about living systems.

Q. Did you author peer-reviewed scientific publications in your area of expertise?

A. I wrote many peer-reviewed publications dealing with all aspects of electromagnetic energy, including its biological effects on humans, animals, cells, its biophysical effects on biological molecules, and its engineering

characteristics. These publications are listed in my curriculum vitae which is attached as Exhibit 1.

Q. What is electromagnetic energy?

A. It is one of the four basic forces in the universe. Electromagnetic energy is present within all living things; it regulates the function of every cell in the body and serves as one of the two basic languages of the brain, the heart, the nervous system, and the musculoskeletal system. Electromagnetic energy occurs naturally in the environment, for example, the earth's magnetic field, and has a profound influence on all basic biological phenomena including growth regulation and control, circadian rhythms, and spatial orientation. Since the beginning of the twentieth century, and particularly after the end of World War II, the levels of man-made electromagnetic energy occurring in the general and work-place environments have risen dramatically as a result of man's economic and social activities.

Q. What activities?

A. The things that characterize and define modernity: the telegraph, radio, television, radar, powerlines, cell phones, wireless networks, smart meters, and innumerable other similar examples.

PECO Experts

Q. Have you read the curriculum vitae of Dr. Mark Israel?

A. Yes.

Q. What is his specialty?

A. He is a pediatrician with a sub-specialty in oncology.

Q. Is he also an experimental biologist?

A. Yes. He has co-authored many peer-reviewed publications in his area of expertise.

Q. What is his area as assessed from his publications?

A. *The biochemistry and molecular biology of cancer.*

Q. Did you find any evidence to suggest that he has worked in the area of experimental biology that deals with the biological effects on electromagnetic energy?

A. No

Q. Have you read Dr. Israel's testimonies dated May 18, 2016 and May 20, 2016?

A. Yes.

Q. What do you understand his conclusion to be?

A. That neither Maria Povacz nor Laura Sunstein Murphy have been harmed by PECO's smart meters, and that neither of them will be harmed in the future.

Q. What do you understand to be the bases for these conclusions?

A. His conclusion that the Complainants have not been harmed was based on his medical evaluation of the testimony of the Complainants.

Q. What was the basis of his conclusion that the Complainants will not be harmed in the future by electromagnetic energy from smart meters?

A. The basis appears to be a medical evaluation of a literature review that he conducted regarding the biological effects of electromagnetic energy.

Q Do you know him to be a worker in the field of biological effects of electromagnetic energy?

A. No. As best I can tell, he became seriously interested in the area at about the time this litigation commenced.

Q Do you have any opinion regarding his "medical evaluation" of the Complainants?

A Dr. Israel uses the term "medical evaluation" equivocally. At times he seems to employ the orthodox meaning, that of a conclusion of a treating

physician, but he is not a treating physician bound by ethical duty to advance the best interest of the patient.

Q. What other way does Dr. Israel employ the term?

A. He sometimes employs "medical evaluation" idiosyncratically to mean, judging from context, that he reads the scientific literature dealing with the experimental biology of electromagnetic fields, the epidemiological studies dealing with that topic, and the opinion of various agencies and blue-ribbon committees, and evaluates that literature using his skills as a physician, leading him to opine that the Complainants have not been injured by exposure to smart meters and even in the future they will not be injured by smart-meter energy. When Dr. Israel uses "medical evaluation" in this sense, to mean the analysis of peer-reviewed scientific publications by a physician who has not actually done research on the subject in question I have a definite opinion, namely that it is ineffective and fruitless. Science and medicine each have rules for generating and recognizing knowledge, and the two systems are different. Confounding the two sets of rules, as he did, is unhelpful and unfortunate, and ultimately impossible. He clearly rejects the idea of electromagnetic hypersensitivity, but he didn't get to that conclusion by conducting an authoritative scientific analysis of the literature based on familiarity and experience in the area.

Q. In your opinion, how did he reach that conclusion?

A. I cannot tell from his testimony. But I can say with considerable confidence it didn't come from scientific analysis. Then he rationalized his choice by cherry-picking published studies that fit his mindset, particularly the work of Rubin. Dr. Israel's reliance on Rubin was to me the clearest possible indication that he does not know the territory related to the health risks of electromagnetic energy.

Q. Are you familiar with Rubin's work?

A. Yes.

Q. What is your understanding of what he is and what he says about electromagnetic hypersensitivity?

A. He is a psychologist who claims that electromagnetic hypersensitivity is a form of mental illness.

Q. What kind of mental illness?

A. A psychosomatic disorder, by which he seems to mean that the sufferers only imagine that their symptoms are caused by man-made electromagnetic energy.

Q. Does he claim that the symptoms aren't real?

A. No. That's not possible because symptoms are subjective. He acknowledges that the sufferer might actually have symptoms, but he denies the possibility that the symptoms might be caused by man-made electromagnetic energy. He employs the term "idiopathic environmental intolerance" to underscore his point that the trigger is some unknown factor in the environment, except that it can't be manmade electromagnetic energy.

Q. Have you had any contact with Rubin?

A. Not directly. The Bioelectromagnetics Society invited us both to appear at their annual meeting in 2015 and debate the issue of electromagnetic hypersensitivity. I accepted, but Rubin declined, so the debate never took place.

Q. Have you had any indirect contact with him?

A. Following publication of our provocation study, he wrote twice to the journal editor, commenting on what he believed to be errors in our work. We pointed out the errors in his analyses of our work and the entire correspondence was published in the journal See Exhibit 2 at 43 and 50.

Q. Would you explain the relation between your work and his work?"

A. The nominal purpose of his experiments was to find electromagnetic hypersensitivity. But he didn't find it so he concluded essentially that it didn't exist. But in science a negative result is universally acknowledged as having low

probative value, because anybody can find nothing. Special talent or training is not needed. The upshot is that a hundred negative studies can be conclusively refuted by one valid positive result. This is why negative studies are usually not published. Our one study showed that he was wrong to interpret his observations to mean that electromagnetic hypersensitivity did not exist.

Q. In your opinion, why did his studies fail?

A. In Rubin's perspective, the only way to scientifically prove that man-made electromagnetic energy could cause somatic symptoms in self-diagnosed sufferers was to first pick a symptom to be studied. Then, after assembling a group of self-diagnosed sufferers who had that particular symptom, he designed the statistical structure of his study such that the cause/effect link between the energy and the symptom could not be detected unless the symptom was precisely reproducible in each subject during repeated trials, and also in all subjects. This design was a near certain guarantee that he would not find what he professed to be seeking because sufferers are human beings, not machines, and they do not react like machines. Consequently, at the statistical level, Rubin simply averaged away reality, like the man with his feet in a fire and his head in a block of ice who reported that his body temperature was normal, on average.

Q. How did your study differ in this regard?

A. We assumed that any symptoms triggered by the energy we applied would be specific to the subject, rather than universal reactions that were similar

in nature and intensity to the reactions of all true hypersensitivity sufferers. We allowed for the possibility that the same subject could exhibit different symptoms during independent trials. For example, if a sufferer reported knee pain in the first trial, fatigue or weakness in the second, and a headache in the third, we counted the results as three reports of a link between exposure and a hypersensitivity reaction, Rubin would count the reports as a failure to find a link because the symptoms were all different. Finally, we used the experimental subject as her own control. That was the purpose of the sham trials.

Q. You said the subject's symptoms were mild or moderate. Did she have any severe symptoms?

A. Yes. That happened, depending on how long she was exposed and on the level of the electromagnetic energy I applied. But our study was not intended to address the issue of symptom severity, but rather to prove the existence of a causal link between electromagnetic energy and symptoms. To accomplish this objective, it was necessary to conduct a sufficient number of independent trials to be able to show to a statistical certainty that she reported symptoms more often during actual exposure intervals compared with sham intervals, which were the intervals when the energy was not applied. When the symptoms were severe they did not abate for hours, which made it impractical to do the study. During a period of about a week, by trial and error, I learned how low to set the energy level so that her symptoms following a 100-second exposure would abate in less than about 15 minutes. Our identification of that threshold made it possible to

achieve our study objective, but it also precluded us from studying the link between exposure and severe symptoms.

Q. Overall, do you disagree with Dr. Israel's analysis?

A. Yes. I think that Dr. Israel's testimony was polemical not analytical. Essentially he doesn't accept the existence of electromagnetic hypersensitivity. I think his perspective is understandable because the research area involving electromagnetic bioeffects is far from his routine responsibilities as a physician. Nevertheless it is not credible for him to enter this field, make a "medical evaluation," and then ask to be believed because he is a doctor, which is what it seems to me that he did.

Q. Have you read the curriculum vitae of Dr. Christopher Davis?

A. Yes.

Q. What is his specialty?

A. He is an engineer.

Q. Is he also an experimental biologist?

A. No, but his research-related activities have been heavily supported by many industrial and government agencies, and he has co-authored many peer-reviewed publications in his area of expertise.

Q. What is his area of expertize as assessed from his publications?

A. Engineering support. He has assisted investigators studying many different kinds of problems. For examples, the solid-state, viscoelastic, light-transmission, and electrical properties of various materials, and the dynamics of wireless networks.

Q. Did you find any evidence to suggest that he has worked in the area of experimental biology that deals with the biological effects on electromagnetic energy.

A. No

Q. Have you read the testimonies of Dr. Davis dated May 18, 2016 and May 20, 2016?

A. Yes.

Q. What did you understand was the substance of what he said?

A. That smart meters emit electromagnetic energy, that the energy is not unusual, and that the energy is safe because the FCC says so.

Q. Do you agree with what you understood him to say?

A. I agree that smart meters emit energy. I don't agree with the assertion that the energy is not unusual because, in the context he used it, the claim is misleading.

Q. Why is it misleading?

A. Because what is or is not "unusual" depends completely on the frame of reference. If the symptoms of the Complainants is frame of reference, the energy is unusual because at least some of their symptoms didn't develop in the absence of the smart-meter energy. If the frame of reference is the natural world as it existed before man-made electromagnetic energy was invented, smart-meter energy is unusual because it is about a billion times stronger than the corresponding natural level, more or less. If the reference frame is the location in the houses of the Complainants where the smart meters will be installed, then it is unusual because the resulting energy at those locations will be about a million times stronger compared with the pre-installation levels, more or less.

Q. Why do you disagree with Dr. Davis's testimony concerning the FCC?

A. Because it is misleading. According to the FCC, smart meters and cellphones are safe when manufactured according to the presently mandated emission levels. But the FCC defines an emission level as "safe" if it doesn't result in adverse biological effects caused by heating or cooking of the exposed subject. Nowhere does the FCC say that smart meters are safe with regard to physiological changes cause by physical processes other than heating or cooking. That claim is unsupportable and counter-scientific, and has not been made by the FCC. Dr. Davis's testimony is pregnant with the notion that the FCC says smart meters are safe with respect to all possible mechanisms, which is not the case.

Q. Dr. Davis testified that he agrees with the FCC statement on its website that adverse biological effects from non-thermal exposure levels of electromagnetic energy are ambiguous and unproven. Do you agree?

A. I am familiar with what the FCC means by "ambiguous" and "unproven, with the legal context that governs its jurisdiction, with the extent to which the experiments the FCC is required by law to consider are specifically designed to create ambiguity, and with the overwhelming economic and sociological consequences if the FCC were to say otherwise. In my opinion, in the context of this case, the FCC issue is a red herring.

Q. Dr. Davis testified that installation of a smart meter wouldn't increase the amount of electromagnetic energy in the house where it was installed. Do you agree?

A. No. When electromagnetic energy is created at a specific location, the laws of physics almost always require that it add to, not cancel, any preexisting electromagnetic energy. There are exceptions, but they do not apply to context relevant this case.

Q. Dr. Davis testified that there have been many reports by expert panels whose consensus is that there is no consistent, reproducible evidence that electromagnetic energy causes any biological effects. Do you agree?

A. Yes, but considering the purpose for which he offered the testimony, it is extremely misleading.

Q. What do you mean, why is it misleading?

A. The thrust of his testimony is to assert that all experts agree that man-made electromagnetic energy in environment, including but not limited to smart meters, doesn't cause any biological effects. I know or have known many such experts, perhaps most, either personally or by reading their publications, and I can say without any qualification that their consensus is the opposite of the one Dr. Davis has asserted. Even more counterfactual, Dr. Davis trusts that the experts on the panels he cited were disinterested, but historically that has almost never been the case.

Q What do you understand to be Dr. Davis's testimony regarding the possibility that smart meters can cause human disease or trigger hypersensitivity reactions?

A. I believe he conceptualizes that the only possible biological effects from man-made electromagnetic energy occur by means of heating or cooking tissues. Since smart meters can't cause those effects, they must be safe.

Q. Do you agree with him?

A. No, because his premise is wrong. There is a very large data base of empirical studies in experimental biology that demonstrates beyond reasonable doubt that biological effects can occur at levels of man-made electromagnetic energy actually present in the environment

Q. What do you understand to be Dr. Davis's testimony regarding his measurements of man-made electromagnetic energy actually present in the environment, including levels produced by smart meters.

A. I believe he conceptualizes that the results of brief, spatially and temporally localized measurements at particularly chosen locations can adequately characterize the electromagnetic environment of the homes of the Complainants, and he did so to in a manner that, at least on the surface tends to trivialize the concerns of the Complainants.

Q. Do you agree with him?

A. No. His testimony in this regard was highly misleading.

Q. In what way?

A. In two ways. He testified that the electromagnetic energy from PECO 's smart meter in Ms. Povacz was 246 times smaller than the level in New Hope, PA. But that comparison was strongly dependent on the locations of the measurements. If he made the measurements at different locations from the smart meter and at different locations in New Hope, he could easily have found that the level in Ms. Povacz house was 246, or even 2046, times greater than the level in New Hope. A meaningful comparison of ambient levels is extremely difficult. Dr. Davis didn't even come close to accomplishing this task. Second, I think that Dr. Davis's testimony created the false impression that time is not a material factor in an attempt to establish a comparison. At virtually all

representative points in the general environment, the actual levels of man-made electromagnetic energy vary over extremely wide ranges. A variation of 1,000,000% would not be unusual, and a variation of 1,000% would be extremely common. In so far as I could determine, Dr. Davis did not consider this factor.

Q. What do you understand to be Dr. Davis's testimony regarding the relation between how much of a change in the existing level of electromagnetic energy caused by smart meters must occur before the matter of health risks is raised?

A. I understood him to mean that if the PECO energy levels were low compared with some reference value then the PECO energy wouldn't matter from a health perspective.

Q. Do you agree with him?

A. No. I understand his perspective. He is an engineer and his professional activities involves working with what are called linear systems, by which I mean things that follow laws whereby if a little change does something, then a change ten times as much will do ten time more. Virtually every system in the world of an engineer works that way. But animals and human beings are nonlinear systems, buy which I mean that their laws can allow things to happen which cannot happen in linear systems. For example, human beings can exhibit very strong responses to very small stimuli in the complete absence of a proportion between the cause and the effect. Dr. Davis's assumption that the stimulus-response relationships of human beings are governed by linear laws is wrong. See Exhibit

2 at No. 84, 88, and 89. Consequently he has no rational basis to argue that PECO's energy is too small to matter.

Opinions of Agencies

Q. In forming the opinions you expressed here, have you taken into consideration the official positions of government agencies regarding safety regulations concerning electromagnetic energy?

A. I know about those positions generally, but for at least two reasons they have not had a significant impact on my opinions. First, their positions are far behind the present state of the science. They are based on out-moded concepts which the independent workers who study the effects of electromagnetic energy that I know do not regard as reasonable. Second, the legal structure of federal law as regards the toxic side-effects of man-made environmental electromagnetic energy effectively requires the agencies to discount the health risks due to man-made electromagnetic energy in the environment.

Q. What legal structure are you referring to?

A. The Radiation Control for Health and Safety Act of 1968. See Exhibit 2 at No 78.

Q. What does that law have to do with the issues in this case?

A. In 1962, following the birth of thousands of armless and legless babies in Europe caused by thalidomide that had been sold to pregnant women, the US Congress required drug companies to provide pre-market scientific evidence of

the safety of new drugs. In 1968, Senator Rogers, of Florida proposed applying the same social principle to devices that emitted man-made electromagnetic energy into the environment. His proposal, The Radiation Control for Health and Safety Act of 1967, would have authorized the government to perform research and regulate the safety of all devices that emitted man-made electromagnetic energy. But opponents of this principle, the industries that manufactured and sold energy-emitting devices, successfully argued that the health impact of man-made electromagnetic energy should be assessed subsequent to marketing. This policy shifted the burden of proof to the party asserting injury and was subsequently adopted by all federal agencies. Each relevant federal agency therefore begins with the assumption of safety, and requires any aggrieved litigant to prove non-safety.

Q. In forming the opinions you expressed here, have you taken into consideration the official positions of private national and international agencies regarding safety regulations concerning electromagnetic energy?

A. I know about their positions generally, but they have not had a significant impact on my opinions because their positions are far behind the present state of the science, and are invariably heavily biased in favor of industry positions. In addition, in all the cases that know about, the decisions of the agencies were star-chamber processes in which those with opposing views were excluded.

Conclusion

Q. What are your conclusions?

A. First, here is a reasonable basis in established science for the Complainants' concern regarding risks to human health caused by man-made electromagnetic energy in the environment, including the type of electromagnetic energy emitted by smart meters. These health risks are heightened in the very young, the very old, and in those with preexisting diseases or disorders.

Second, electromagnetic hypersensitivity is a documented neurological condition in which the affected person experiences musculoskeletal, immunological, and/or neurological symptoms that noticeably flare or intensify upon exposure to man-made electromagnetic energy in the environment. About 5-10% of the general public are self-reported to suffer from this disorder.

Third, the Complainants were forced into the almost impossible position of conducting experiment on themselves to prove to PECO's satisfaction that their claims of a link between their symptoms and electromagnetic energy from smart meters were sufficiently credible as to warrant some remediable action by PECO.

Fourth, there is no justifiable reason for PECO to doubt the reality of the Complainants' symptoms, to question their intentions in seeking relief, or to not respect and implement the advice they received from their physicians that exposure to smart-meter energy should be avoided.

Fifth, chronic exposure to the electromagnetic energy from smart meters causes risks to human health that go far beyond the capability of the energy to trigger hypersensitivity reactions in sensitive persons. A large literature in

experimental biology indicates that man-made electromagnetic energy, including that from smart meters, causes biological effects involving every essentially physiological process that occurs in living organisms. A large literature in nonexperimental biology shows that man-made electromagnetic energy, including that from smart meters, is associated with a plethora of human diseases. People who suffer from pre-existing conditions are particularly vulnerable, and all the Complainants suffer from such conditions.

Sixth, PECO's claim that the FCC has pronounced smart meter safe is spurious because the FCC has made that statement only with regard to the heating and cooking effects of electromagnetic energy. The Complainants have made no claims that smart meters are like microwave ovens.

Seventh, PECO has claimed that expert committees have pronounced smart meters safe, but PECO has not acknowledged the blatant conflicts-of-interests that infect such committees nor the serious limitations on their reports, such as the failure to address much of the relevant literature.

Eighth, PECO proposes to expose human beings to smart-meter electromagnetic energy over their objection under conditions that would not be acceptable to any institution in the United States where human experimentation can lawfully be performed. Consequently, coercing the Complainants to endure the risks and uncertainties of such exposure is unwarranted, unjustified, and would amount to involuntary human experimentation by PECO.

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MICHELE HRIADIL and FRANCIS HRIADIL,	:	
Complainant,	:	
vs.	:	No: C-2016-2571726
DUQUESNE LIGHT COMPANY,	:	
Respondent.	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing document upon the participant listed below in accordance with the requirements of 52 PA. Code § 1.54 (relating to service by a participant):

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