331 Shady Ridge Drive
Monroeville, PA 15146

January 24, 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 Complainants New Matter, along with 5 Exhibits, to add to our Formal Complaint filed by Michele and Francis Hriadil.

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.	:	No: C-2016-2571726
DUQUESNE LIGHT COMPANY,	:	
Respondent.	:	

NEW MATTER

Filed by Michele and Francis Hriadil

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

NOTICE TO PLEAD on NEW MATTER

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

YOU ARE HEREBY NOTIFIED TO FILE A WRITTEN RESPONSE TO THE WITHIN NEW MATTER OF COMPLAINANTS MICHELE AND FRANCIS HRIADIL WITHIN TWENTY (20) DAYS OF SERVICE HEREOF, OR A JUDGMENT MAY BE ENTERED AGAINST YOU.

Francis Hriadil

Francis Hriadil
January 24, 2017

BEFORE THE

PENNSYLVANIA PUBLIC UTILITY COMMISSION

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

NEW MATTER

TO THE HONORABLE COMMISSION:

1. Complainants (our) Formal Complaint, Complainants (our) November 29, 2016 Response to Respondent's original Preliminary Objections, Complainants (our) December 19, 2016 Response Addendum to Respondent's Corrected Preliminary Objections, Complainants (our) January 9, 2017 Response to the Respondent's Answer and New Matter, Complainants (our) January 20, 2017 Response to the Respondent's Answer in Opposition to Complainant's Motion for Summary Judgment, all Supporting Documents and all Exhibits, are incorporated here-in by reference as if fully restated.

2. In Section 4, page 2, of Respondent's Answer and New Matter, Respondent makes the statement:

> "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."

Complainants (we) wish to raise a New Matter about this "statement."

3. Complainants (we) have provided incontrovertible evidence in our January 20, 2017 Response to Respondent's Answer and New Matter which establishes the Material Fact that this statement is untrue, and that it is not an accurate description of how the Duquesne Light / Itron **SK9AMI7 OpenWay Centron Smart Meter** operates **in the Smart Grid** that Duquesne Light is deploying. For convenience of the Commission, we review and elaborate on that evidence here.

4. The statement that "the Company's smart meters" operate "like its traditional analog meters" is disingenuous and blatantly untrue. **Smart Meters in a Smart Grid are nothing like traditional Analog Meters in design, construction, safety, reliability, and operation**. See the summary in Section 14. pages 10 and 11 in this filing.

5. The statement that "the Company's smart meters ... transmit RF waves for only short periods every day" is also disingenuous and blatantly untrue. **The SK9AMI7 Smart Meter, in fact, pulse radiates high intensity RF waves 100s to 1000s of times a day to communicate with the other Smart Meters in the Smart 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. And, it has not been supplied in any of their Exhibits. They typically bury this particular detail, if they even present it at all. Their statements, literature, and presentations are generalizations that are full of misrepresentations and inaccuracies. It is a Material Fact **[Exhibit 1 of 5** (2 pages)**]** that it took a Court Order by California PUC ALJ Judge Amy C. Yip-Kikugawa to compel PG&E (a CA EDC) and **ITRON (the Smart Meter manufacturer)** to provide the true data.

Specifically, **PG&E, ITRON, et al, were forced to reveal that while each of their Smart Meters broadcasts actual usage data only 6 times a day to the EDC, each meter actually emits a signal on average 1,000s of times a day, and specifically in the case of PG&E 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 also admitted that their Smart Meter's peak power is 2.5 Watts, which is 10x more powerful than a cellphone, and that it continuously emits a small amount of radiation even when not broadcasting.

[Exhibit 2 of 5 (3 pages)**]**

Why is California pertinent to our Formal Complaint? It is pertinent because ITRON is the manufacturer of the SK9AMI7 OpenWay Centron Smart Meter being deployed by the Respondent Duquesne Light, and the Respondent's Counsel specifically refers to California in their Answer and New Matter. Complainants (we) have looked and have, as yet, not been able to find a definitive answer to the question of Peak Power. So, we ask Respondent, **what is the Absolute Peak Power capability of the 900 MHz RF transceiver and the 2.4 GHz ZigBee transceiver in the SK9AMI7 Smart Meter?**

6. As for the true number of transmissions a day that occurs with the ITRON SK9AMI7 Smart Meter, which Duquesne Light is deploying in Pennsylvania, the ITRON White Paper - "Wireless Transmissions: An examination of OpenWay Smart Meter Transmissions in a 24-Hour Duty Cycle" **[Exhibit 3 of 5** (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. The question is, how much less?

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. So, we ask again, **what is the actual pulse transmit burst?**

7. Can we get a better idea of what the SK9AMI7 OpenWay Pulse Transmission interval really is and **how the SK9AMI7 actually operates in the field**? It turns out that there is another source of data about the operation of the SK9AMI7 Smart Meter in a Smart Grid, as being deployed by Duquesne Light, that is available that does indeed provide that information.

In documented testimony that was 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 4 of 5 (3 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**.

(my emphasis)

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 5 (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]

(my emphasis)

This exactly matches the information supplied in the ITRON White Paper referred to in Section 6., which has been attached as Exhibit 1.

These 2 pieces of documented information establish that the Mean/Average Duty Cycle of 0.06% equates to the quoted average of 1,268 pulse transmissions per day in the field, which further establishes that the actual Transmission Burst Time Interval is closer to 42 millisec = 0.042 sec, than the 150 millisec quoted in the ITRON White Paper.

With this piece of data, the pulse transmission table on page 5 becomes

	Duty Cycle	Time in 24 hr	**Number of Pulse Transmissons in 24 hr**
Minimum	0.02%	18.31 sec	**423 (once every 3.40 min)**
Mean	**0.06%**	**53.14 sec**	**1,268 (once every 1.14 min)**
Maximum	0.58%	497.80 sec	**12,257 (once every 7.0 sec)**
Abs Max	5.0%	~ 4,291 sec	**105,667 (once every 0.82 sec)**
"Expected" Max	1.0%	~ 858 sec	**21,133 (once every 4.1 sec)**

8. In either case, **the evidence is clear and incontrovertible that the SK9MIA7 Smart Meters broadcast 100s to 1000s of RF pulse transmissions, like a pulsating strobe, on an ongoing 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."

9. **Further**, since the Smart Meter is programmable, t**he Respondent Duquesne Light can increase the Duty Cycle at any time, for any reason, and to as high a level as it wants, unbeknownst to the customer** and, from all of the documentation we have been able to review thus far, it appears unbeknownst to the PA PUC as well. **There appears to be no oversight or limitation on this operational capability. We ask Respondent to confirm that this is the case. And, we would also add that a hacker would have the exact same capability to alter this function as well.**

10. **Further, the SK9IMA7 Smart Meter, and other meters of its type, use Switch-Mode Power Supplies.** They contain AC/DC switching circuitry which interrupts current flow, and use current in small, very fast pulses. This causes Voltage Spiking on the home's interior electrical wiring, on the home's 60 Hz interior electrical grid. This turns the home's interior electrical wiring grid into transmitting antenna which **also pulses LF Radiation throughout the entire house in sync with the RF transmit burst**.

11. So, Smart Meters, such as the ITRON SK9MIA7, actually **produce 2 types of harmful pulsed emissions:**

1. **Wireless RF (Radio Frequency) Radiation through the air**

   900 MHz (900,000,000 Hz)

   this is how the Smart Meter communicates with other Smart Meters and the Utility Company

   2.4 GHz (2,400,000,000 Hz)

   this is how the Smart Meter communicates with Smart Appliances in the Home

2. **LF (Low Frequency) Radiation from the House Wiring due to induced Voltage Transients**

   2 kHz - 50 kHz (2,000 Hz - 50,000 Hz)

And, as established in Complainants (our) Formal Complaint and previous filings, and also here-in, and by other Complainants, **these emissions are a new, not normal, not natural, intense, frequent, ongoing environmental factor, an unrelenting contaminant, that is now being introduced into our homes and living environments.** They are invisible. You can't see them. But, **they have been shown by numerous reputable, respected, credentialed, unbiased, and independent experts, institutions, associations, and agencies to represent a credible threat of harm, especially to children and the elderly (of which we are a part).**

We are Electrical Creatures. Our bodies possess a natural "Biological Electrical Grid", which is the human nervous system. Every cell in the human body has an electric field. And, there are trillions of electrical connections in the "Human Body Grid." Every function in the body depends on the body's natural, internal electrical signals. And, our brains work at different frequencies, at different times and in different states.

The human body is also a "Human Receiving Antenna." As such, our cells cannot stop receiving the signals coming from devices such as a Smart Meter. We cannot simply turn this reception off. Our cells are disturbed by these signals. Our cells are not compatible with these signals. And, any electrical disruption and failure that the body suffers at the cellular level leads to disease processes. This is the fundamental underlining Material Fact of the situation.

12. Further, it was established in Complainants (our) January 9, 2017 Response to the Respondent's Answer and New Matter, in Complainants (our) Response 4 (3) (c) on page 13, which was substantiated by a number of provided Exhibits, **that the whole body exposure from a Smart Meter is actually orders of magnitude greater than that of a cellphone**, rather than orders of magnitude lower as is erroneously claimed by the Respondent Duquesne Light and other EDCs.

13. Further, **there are many significant unaccounted for factors in the indiscriminate deployment of Smart Meters, such as the SK9AMI7, in a Smart Grid. There are many conditions that can influence Radiofrequency radiation levels in the home environment.**

- **there are uncertainties about the existing RF environment at a location**

  There is no knowledge or even concern about the current RF baseline at a location, i.e. how much RF exposure already exists at a location

- **there is no account taken of what kind of reflective and re-radiation interior and exterior environments exist at a location (the reflection and re-radiation factor).**

  Reflections and re-radiation can come from common building materials (tile, concrete, stainless steel, glass, ceramics) and highly reflective appliances and furnishings that are common in kitchens, for example.

- **there is no account taken of how interior and exterior space is utilized near walls where the Smart Meters are mounted,**

- **there is no account taken of other characteristics of residents**

  (age, medical condition, disabilities, medical implants, relative health, reliance on critical care equipment that may be subject to electronic interference, etc)

- **there is no account taken of the unrestrained access to areas of the property where the Smart Meter(s) are located**

All of these are serious considerations. They argue for a reasonable, restrained approach; not some indiscriminate, universal, "across the board without exception" deployment. What is the Respondent Duquesne Light's response to this? What is the Commission's response to this?

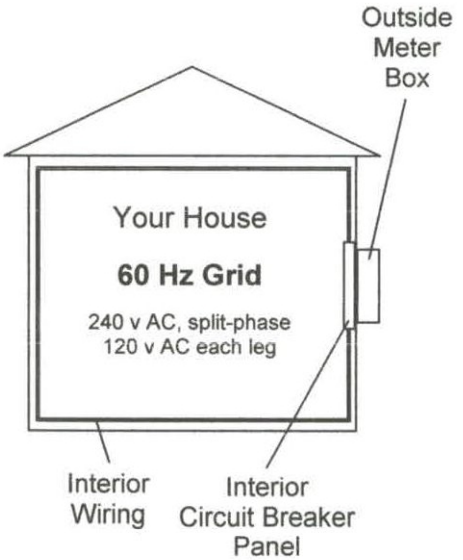
Without any credible answers to these kinds of questions, and the other issues that we and others have raised, the Complainants (we) aver that the deployment of the Duquesne Light / ITRON SK9AMI7 Smart Meter in Duquesne Light's Smart Grid is in violation, at a minimum, of **Section 1501 of the Public Utility Code,** which states quite emphatically

> § 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)**

Some limited testing carried out under controlled laboratory conditions, does not come anywhere near to establishing compliance with this statute, which the PA PUC is legally and ethically bound to uphold and enforce for the protection, safety, and well-being of the residents of the state of Pennsylvania.

14. So, what is the true nature and operational character of a Smart Meter, such as the Duquesne Light / ITRON SK9AMI7 Smart Meter, being deployed in a Smart Grid. What is the true comparison of "the BEFORE" and "the AFTER"?

<u>"The BEFORE" - the orginal, traditional non-emitting Analog Meter</u>:



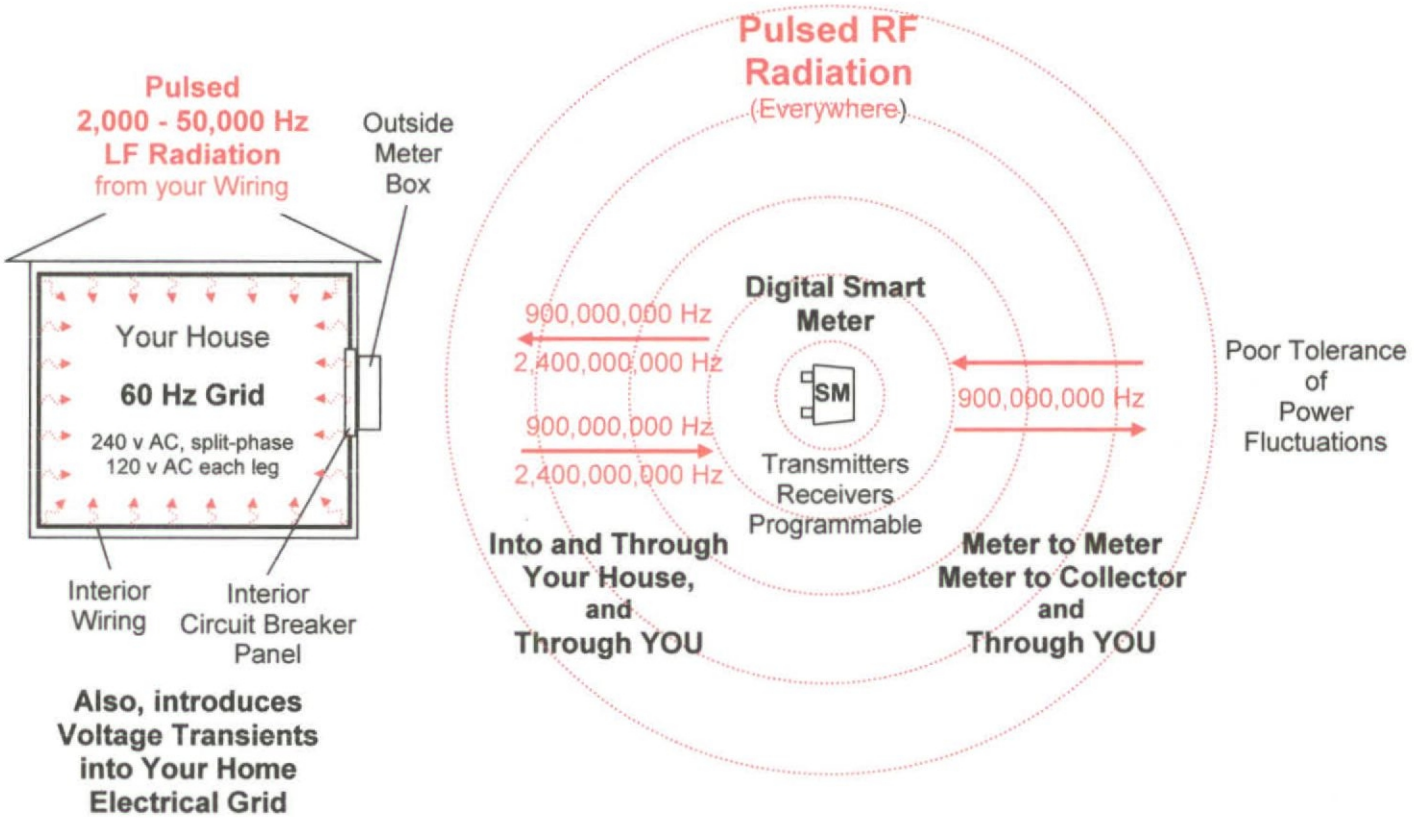
Compatible with Your 60 Hz Grid And with YOU

Non-emitting Analog Meter

Inherently Tolerant of Power Fluctuations

- **Simple, Mature, Robust, Accurate**
- **Safe, Reliable (30 - 40 yr life)**
- **Inexpensive (~$35), Cost Effective**
- **Secure, Private: Can't Be Hacked or Monitored**
- **No Transmissions, No RF and LF Radiation**
- **Few Inherent Risks and Dangers**

"The AFTER" - with the new Duquesne Light / ITRON SK9AMI7 OpenWay Centron Smart Meter installed in its Smart Grid:



- **Complex, Immature (Recalls), Fragile (5 - 7 yrs life),**
- **Inaccurate (Overbilling), Unsafe (Fire Potential), Unreliable**
- **Expensive (~$200 - $300, which we are paying for)**
- **Not Secure, Not Private: Can Be Hacked and Monitored**
- **100s - 1000s of RF and LF Pulsed Transmissions per day**
- **RF and LF Radiation Exposure**
- **Many Risks, Dangers, and Unknowns**

So, is it really true, as Respondent Duquesne Light simply states, that

"the Company's smart meters"

1. **are "like its traditional analog meters"?**
2. **just "utilize low-energy RF waves to transmit electricity"?**
3. **and "transmit RF waves for only short periods every day"?**

Respondent Duquesne Light has used this statement in section 4, page 2, of Respondent's Answer and New Matter, and other similar statements, in their effort to contest and discredit our Formal Complaint.

15. California Public Utilities Commission (CPUC) Administrative Law Judge (ALJ) Amy C. Yip-Kikugawa recognized that there were significant discrepancies between statements made by the EDCs and Smart Meter Manufacturers such as ITRON and the true operating characteristics of the Smart Meters in a Smart Grid. This led ALJ Yip-Kikugawa to issue a Court Order to seek clarification and full disclosure from the EDCs and Smart Meter Manufacturers such as ITRON. In her order, ALJ Yip-Kikugawa asked a set of very specific and detailed questions. These are extracted verbatim from her Court Order, which is provided as **[Exhibit 1 of 6].**

1. What is an average duration (in seconds) that a residential smart meter transmits in a 24 hour period?

    a. How is this average computed or measured?

2. How many times in total (average and maximum) is a smart meter scheduled to transmit during a 24-hour period?

    a. How many of those times (average and maximum) are to transmit electric usage information?

    b. How many of those times (average and maximum) are for other purposes? What are those other purposes?

    Please specify number of times (average and maximum) by type/category of transmission.

3. Under what scenarios does a meter transmit outside of the daily schedule, i.e., unscheduled transmission such as on-demand read, tamper/theft alert, last gasp, firmware upgrade etc.?

4. Typically, how much of the communication between the customer's meter and the utility is unscheduled vs. scheduled?

5. Are there any other factors that go into determining duration and/or frequency of meter transmissions (e.g., if a meter can't access the network when it's trying to send data, type of a meter etc.)? If yes, please identify these factors.

6. What is the amount of RF emission at the source when a meter is transmitting data (instantaneous maximum peak level, averaged over 30 minutes)?

7. Does the amount of RF emission vary depending on duration of transmission/volume of data being sent? For example, are RF emissions higher when there is a larger volume of data to be transmitted?

8. Are there any other factors that impact the amount of RF emissions? If so, please identify the factor(s) and its impact on RF emissions.

9. Is there RF emission when the meter is not transmitting? If yes, what is the amount of RF emission?

10. Is there a difference in the amount of RF emissions for a wireless smart meter with the radio off and a smart meter with the radio out? If yes, what is that difference and how is it calculated?

11. Is there a difference in the amount of RF emissions for a wireless smart meter with the radio off and an analog meter? If yes, what is that difference and how is it calculated?

What are the Respondent Duquesne Light's answers to these questions? The answers to these type of questions are important to establishing the true operating nature and characteristics of Smart Meters such as the Duquesne Light / ITRON SK9AMI7 OpenWay Centron Smart Meter in its Smart Grid. The grossly inaccurate, oversimplified, and disingenuous statements like those presented by the Respondent in section 4, page 2 of Respondent's Answer and New Matter, and in their published literature supplied in their Exhibits, concerning the operation of "the Company's smart meters", falls well short of any reasonable standard to corroborate compliance with statutes such as the **Section 1501 of the Public Utility Code,** which we repeat here again,

> § 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)**

and falls well short of any reasonable basis to discredit and deny Complainants (our) Formal Complaint.

WHEREFORE, considering the incontrovertible facts and issues established here-in, along with the many other relevant factors Complainant's (we) have presented in our Formal Complaint, in our previously filed January 20, 2017 Response to the Respondent's Answer in Opposition to Complainant's Motion for Summary Judgment, our January 9, 2017 Response to the Respondent's Answer and New Matter, and our 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 the following:

#1. that the Respondent responds to all questions and issues raised here-in in writing, with credible material backup. And, if the Respondent fails to do so, the Complainants (we)

respectfully request that the Commission rule in favor of the Complainants request for a Summary Judgment, and against the Respondent, in this case.

#2. that the Respondent concedes that Respondent's "statement" from their Answer and New Matter, repeated here in Section 2. page 2, is not a true and complete representation of the operating nature and character of their Smart Meter in its Smart Grid, and that they retract this statement. And, if the Respondent fails to do this, Complainants (we) respectfully request that the Commission rule that it is a Material Fact that this is the case.

#3. that the Respondent concedes that their SK9AMI7 Smart Meter broadcasts 100s to 1000s of RF pulse transmissions, like a pulsating strobe, on an ongoing basis throughout the day, 24 hrs a day, 7 days a week. And, if the Respondent fails to do this, Complainants (we) respectfully request that the Commission rule, based on the incontrovertible evidence that has been provided from ITRON's own literature and documented testimonies about the operation of the SK9AMI7, that it is a Material Fact that this is the case.

#4. that the Respondent concedes that the SK9AMI7 Smart Meter utilizes a Switch-Mode Power Supply which causes Voltage Spiking in the home's interior electrical wiring. And, if the Respondent fails to do this, Complainants (we) respectfully request that the Commission rule that it is a Material Fact that this is the case.

#5. that the Respondent concedes that it can increase the Duty Cycle at any time, for any reason, and to as high a level as it wants, unbeknownst to the customer. And, if the Respondent cannot establish otherwise, the Complainants (we) respectfully request that the Commission rule that it is a Material Fact that this is the case.

#6. that the Respondent concedes, as summarized in Section 13. Page 9, that there are many factors that are unknown and unaccounted for in its indiscriminate deployment of the SK9AMI7 Smart Meter in its Smart Grid. And, if the Respondent cannot establish otherwise, the Complainants (we) respectfully request that the Commission rule that it is a Material Fact that this is the case.

#7. that the Respondent concedes that Smart Meters in a Smart Grid are nothing like traditional Analog Meters in design, construction, safety, reliability, and operation. And, if the Respondent fails to do this, Complainants (we) respectfully request that the Commission rule that it is a Material Fact that this is the case.

#8. that the Respondent concedes that the operation of Smart Meters in a Smart Grid is not by any reasonable standard equivalent to the operation of a cellphone. A consumer can choose to buy a cellphone or not; it is a voluntary choice. A consumer can turn a cellphone off any time he or she wants. Complainants (we) have submitted evidence to the Commission establishing that the whole body exposure from a Smart Meter actually is and can be orders of magnitude greater than that of a cellphone

(refer to Section 12. page 9 here-in, and Complainants previous filings including our January 9, 2017 Response to the Respondent's Answer and New Matter, in Complainants (our) Response 4 (3) (c) on page 13.)

"They" aver that it is no worse than a cellphone. Yet, the International Agency for Research into Cancer (IARC) of the World Health Organization (WHO), has ruled that RF Electromagnetic Fields given off by Smart Meters, and cellphones as well, belong to the "Group 2B" class of agents, such as lead, engine exhaust, and chloroform, and as such, represent a potential "carcinogenic hazard."

And, if the Respondent fails to do this, Complainants (we) respectfully request that the Commission rule that it is a Material Fact that this is the case.

Complainants (we) continue to strongly aver that this is all in violation of Section 1501 of the Public Utility Code, which the Commission is legally and ethically bound to uphold and enforce for the protection, safety, and well-being of the residents of the state of Pennsylvania.

Respectfully yours,

Francis Hriadil

Francis Hriadil
(412) 779-3314
331 Shady Ridge Drive
Monroeville, PA 15146
January 24, 2017

ADMINISTRATIVE LAW JUDGE'S RULING SEEKING CLARIFICATION

This Administrative Law Judge's Ruling (Ruling) seeks clarification from Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), Southern California Edison Company (SCE) and Southern California Gas Company (SoCalGas) (collectively, the investor-owned utilities or IOUs) concerning the frequency and duration of radio frequency (RF) emissions from wireless smart meters.[1] This clarification shall be filed by November 1, 2011.

On September 14, 2011, I held a combined workshop to consider alternatives for customers who wish to opt-out of a wireless smart meter. Representatives from the IOUs and the smart meter manufacturers[2] were present to discuss the technological feasibility and costs of the various alternatives. During the workshop, there were various comments concerning the frequency and duration of the transmissions from the wireless smart meters. According to some parties, the wireless smart meters transmit data in short bursts throughout the day, with each burst lasting a few milliseconds. These parties state that, on average, the cumulative amount of time for the transmission would be 45 seconds a day. Other parties, however, state that while the transmission burst may only last a millisecond, the frequency of the transmission occurs so often that the transmission should be considered constant.

I want to make sure I fully understand this issue. Consequently, I am asking the IOUs to provide further clarification concerning the frequency and duration of the transmissions from the wireless meters and the associated RF emissions. PG&E, SDG&E, SCE and SoCalGas shall, therefore, respond to the following questions:

1. What is an average duration (in seconds) that a residential smart meter transmits in a 24 hour period?
    a. How is this average computed or measured?

2. How many times in total (average and maximum) is a smart meter scheduled to transmit during a 24-hour period?
    a. How many of those times (average and maximum) are to transmit electric usage information?
    b. How many of those times (average and maximum) are for other purposes? What are those other purposes?
    Please specify number of times (average and maximum) by type/category of transmission.

3. Under what scenarios does a meter transmit outside of the daily schedule, i.e., unscheduled transmission such as on-demand read, tamper/theft alert, last gasp, firmware upgrade etc.?

4. Typically, how much of the communication between the customer's meter and the utility is unscheduled vs. scheduled?

5. Are there any other factors that go into determining duration and/or frequency of meter transmissions (e.g., if a meter can't access the network when it's trying to send data, type of a meter etc.)? If yes, please identify these factors.

6. What is the amount of RF emission at the source when a meter is transmitting data (instantaneous maximum peak level, averaged over 30 minutes)?

7. Does the amount of RF emission vary depending on duration of transmission/volume of data being sent? For example, are RF emissions higher when there is a larger volume of data to be transmitted?

8. Are there any other factors that impact the amount of RF emissions? If so, please identify the factor(s) and its impact on RF emissions.

9. Is there RF emission when the meter is not transmitting? If yes, what is the amount of RF emission?

10. Is there a difference in the amount of RF emissions for a wireless smart meter with the radio off and a smart meter with the radio out? If yes, what is that difference and how is it calculated?

11. Is there a difference in the amount of RF emissions for a wireless smart meter with the radio off and an analog meter? If yes, what is that difference and how is it calculated?

As part of their responses to the questions above, the IOUs shall identify the individual who prepared the response to each question. The IOUs shall filetheir responses to the questions listed above by November 1, 2011.

IT IS RULED that by November 1, 2011, Pacific Gas and Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company shall file a response to the questions concerning radio frequency emissions listed in this Ruling.

Dated October 18, 2011, at San Francisco, California.
/s/ AMY C. YIP-KIKUGAWA
Amy C. Yip-Kikugawa
Administrative Law Judge

Notes:
==========
1
As used in this Ruling, a wireless smart meter is a digital electric or gas meter that transmits customer usage data through radio transmission.
2
The smart meter manufacturer representatives were from ITRON, Silver Spring Networks, and Aclara.

BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA

Application of Pacific Gas and Electric Company for Approval of Modifications to its SmartMeter™ Program and Increased Revenue Requirements to Recover the Costs of the Modifications (U 39 M)	Application 11-03-014 (Filed March 24, 2011) **(NOT CONSOLIDATED)**
Application of Utility Consumers' Action Network for Modification of Decision 07-04-043 so as to Not Force Residential Customers to Use Smart Meters.	Application 11-03-015 (Filed March 24, 2011) **(NOT CONSOLIDATED**
Application of Consumers Power Alliance, Public Citizen, Coalition of Energy Users, Eagle Forum of California, Neighborhood Defense League of California, Santa Barbara Tea Party, Concerned Citizens of La Quinta, Citizens Review Association, Palm Springs Patriots Coalition Desert Valley Tea Party, Menifee Tea Party - Hemet Tea Party – Temecula Tea Party, Rove Enterprises, Inc., Schooner Enterprises, Inc., Eagle Forum of San Diego, Southern Californians For Wired Solutions To Smart Meters, and Burbank Action For Modification of D.08-09-039 and A Commission Order Requiring Southern California Edison Company (U338E) To File An Application For Approval of A Smart Meter Opt- Out Plan.	Application 11-07-020 (Filed July 26, 2011) **(NOT CONSOLIDATED**

PACIFIC GAS AND ELECTRIC COMPANY'S RESPONSE TO ADMINISTRATIVE LAW JUDGE'S OCTOBER 18, 2011 RULING DIRECTING IT TO FILE CLARIFYING RADIO FREQUENCY INFORMATION

Question 2:

How many times in total (average and maximum) is a smart meter scheduled to transmit during a 24-hour period?

Response 2:

Electric: Table 2-1 presents scheduled electric SmartMeter™ system messages and their durations. As noted in Response 1, the information presented applies only to the 900 MHz radio. Table 2-1 presents data for all "scheduled" messages; i.e., those inherently required to sustain communications in the network that occur routinely without user intervention. "Non-Scheduled" messages created only at non-recurring times are addressed in Response 3.

TABLE 2-1

Electric System Message Type	**Transmission Frequency Per 24-Hour Period: Average**	**Transmission Frequency Per 24-Hour Period: Maximum (99.9th Percentile)**
[a]	[b]	[c]
Meter Read Data	6	6
Network Management	15	30
Time Synch	360	360
Mesh Network Message Management	9,600	190,000
Weighted Average Duty Cycle	45.3 Seconds[4]	875.0 Seconds

The electric system message types are defined as:

- Meter Read Data refers to the messages generated by each meter to transmit energy usage data.
- Network Management refers to network tasks that need to be performed to maintain the health of the network (e.g., route establishment).
- Time Synch refers to network administration messages needed to update the internal clock in the NIC.
- Mesh Network Message Management refers to activities required to forward routed messages.

Gas: Table 2-2 presents scheduled gas SmartMeter™ system messages and their durations.

TABLE 2-2

Gas System Message Type	**Transmission Frequency Per 24-Hour Period: Average**	**Transmission Frequency Per 24-Hour Period: Maximum**
[a]	[b]	[c]
Meter Read Data	4.228	4.305
Weighted Average Duty Cycle	0.676 Seconds	0.689 Seconds

[4] As stated in Response 1, a small number of electric SmartMeters™ communicate somewhat longer than 45 seconds-per-day, which resulted in an overall mean duration of approximately 62 seconds.

> 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

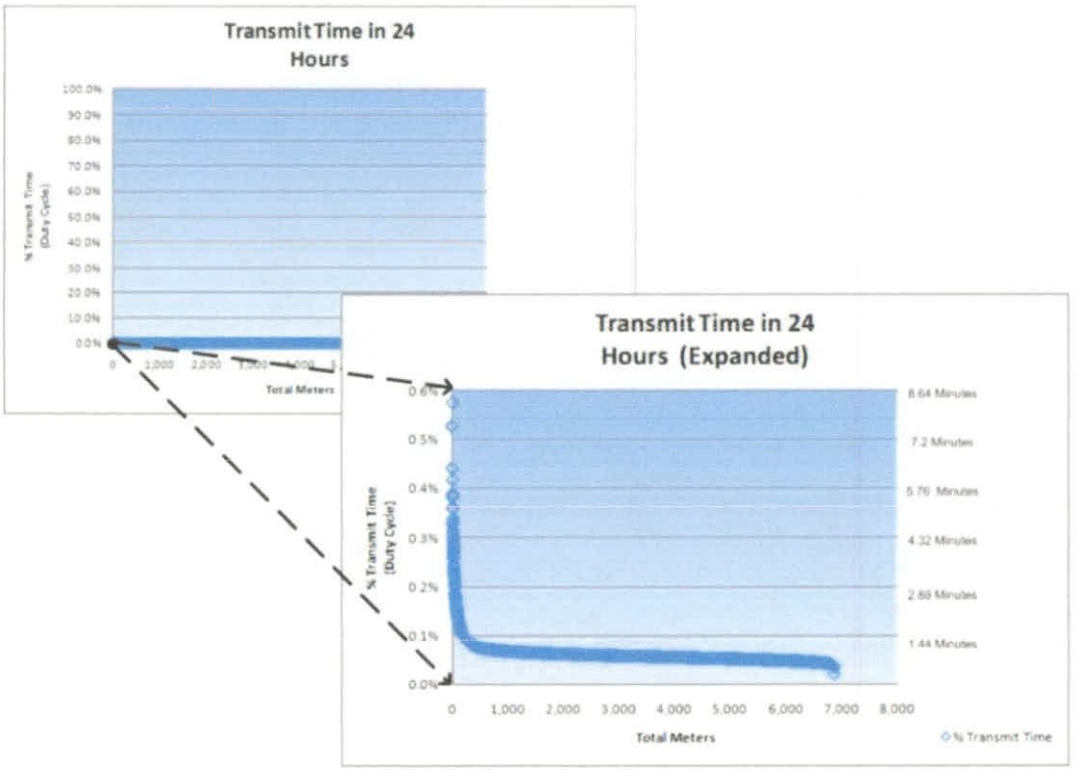


Fig. 2 Percentage of Transmit Time

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 me	Ti
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

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.

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[x]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

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.

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[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

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 24th day of January, 2017

Francis Hriadil

Michele and Francis Hriadil
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RETURN RECEIPT
REQUESTED

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
400 North Street
Harrisburg, Pennsylvania 17120