BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MIRANDA GRACE EDWARDS,

Complainant,

No: C-2018-3002741

vs.

DUQUESNE LIGHT COMPANY,

Respondent.

POST-HEARING BRIEF AND PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER

Filed on Behalf of:
Duquesne Light Company

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I. INTRODUCTION

Duquesne Light Company distributes electricity to Complainant Miranda Grace Edwards at her home. The Company installed an electric meter at the property about 25 years ago. The law now requires Duquesne Light to replace that meter with a digital smart meter.

Duquesne Light notified Complainant that it had to exchange the meter through several phone calls and letters. But when Company personnel tried to swap out the meter on two different occasions, Complainant blocked the exchange both times. She then filed a Formal Complaint with the Commission, alleging that Duquesne Light cannot install a smart meter at her home. She also claimed that the Company's smart meters will damage her health, create a fire hazard, and invade her privacy.

The Presiding ALJ should dismiss the Formal Complaint in its entirety. The Commission has repeatedly ruled that Act 129's smart meter mandate lacks an opt-out. And Complainant provided no evidence at the hearing to support her claims, while Duquesne Light presented overwhelming evidence refuting her allegations. For example, Complainant offered no medical records or testimony to support her claim that radiofrequency ("RF") emitted from the Company's smart meters will damage her health. Conversely, Duquesne Light proved through expert testimony that the amount of RF emitted from its smart meters is far below all relevant health standards (including those set by the Federal Communications Commission) and that its smart meters emit much less RF than many natural and man-made sources that Complainant is already exposed to, including the Earth and other human beings.

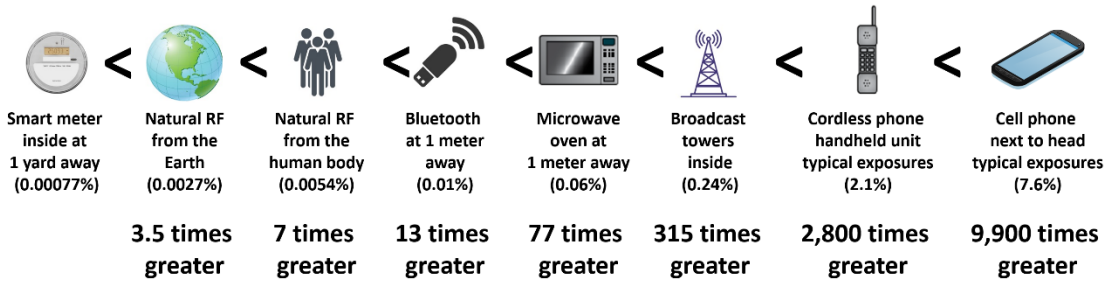

Figure 4. RF exposure of smart meters relative to other RF sources.[1]

Complainant also asserted that the Company's smart meters create a fire hazard, but she identified no specific design or construction flaw in the smart meter. She also could not cite a single instance where Duquesne Light's smart meter caused a fire. In contrast, Duquesne Light proved that its smart meters passed exhaustive safety and flammability testing. They also comply with safety standards set by the Underwriters Laboratory ("UL") and the American National Standards Institute ("ANSI"). In addition, Duquesne Light has already installed about 620,000 smart meters throughout its service territory. None have caused a fire.

Finally, the Presiding ALJ should reject Complainant's claim that smart meters violate her right to privacy by monitoring "what appliances [she is] using and when." Tr. at 153. That claim is simply not true. Duquesne Light's smart meters only collect aggregate consumption data, not information about individual appliance use. Furthermore, the Company protects customer information through numerous cybersecurity measures, such as data encryption, redundant firewalls, and network

[1] This figure is included in DLC Ex. H-2 and H-6.

segmentation. Complainant identified no specific flaw or breach in Duquesne Light's cybersecurity network.

In sum, other than Complainant's personal opinions (which were simply misinformed), she presented no evidence to support her allegations. Pennsylvania law, the Commission's Implementation Order, and the Company's Smart Meter Plan and Tariff all require Duquesne Light to install a smart meter at her home. Overwhelming evidence proves that the Company provided - and continues to provide - adequate, efficient, safe, and reasonable service in all aspects of its smart meter operations.

Accordingly, Duquesne Light requests that the Formal Complaint be dismissed in its entirety and that the Presiding ALJ enter an order stating that the Company can terminate Complainant's service if she continues to interfere with the meter exchange.

II. THE EVIDENCE ESTABLISHED AT THE HEARING

A. The meter that is currently installed at the Service Address no longer has an operational network.

Complainant resides at 3835 Acorn Street, Pittsburgh, PA 15207 ("Service Address"). Tr. at 74. The meter currently at the Service Address is an Automatic Meter Reading ("AMR") meter, which operated on Duquesne Light's AMR fixed network while that network was operational. Tr. at 417, 438-39; DLC Ex. Q. The fixed network has since been shut down in favor of Duquesne Light's smart meter mesh network. Tr. at 418.

B. Act 129 of 2008, the Commission's Implementation Order, and the Company's Smart Meter Plan and Tariff require Duquesne Light to install a smart meter with certain specifications at the Service Address.

Act 129 of 2008 ("Act 129") requires electric distribution companies with more than 100,000 customers to adopt smart meter deployment plans and to install smart meters

throughout their service territories within 15 years of the Commission order. 66 Pa. C.S.A. § 2807. Act 129 also lists the required smart meter functionalities, which was supplemented by Commission Order. Id.; Tr. at 405.

Duquesne Light has more than 100,000 customers and falls within the scope of Act 129. Tr. at 404. The Company filed a Smart Meter Plan with the Commission on June 29, 2012, at Docket No. M-2009-2123948, which the Commission approved. Tr. at 404-05; DLC Ex. B-1. Duquesne Light's Smart Meter Plan identifies Itron, Inc. as the Company's smart meter vendor and network provider. Tr. at 405; DLC Ex. B-1.

Duquesne Light's Commission-approved Tariff states that smart meters conforming to Company standards must be installed at each metered service premises pursuant to Act 129 and the Company's Smart Meter Plan. DLC Ex. D-2. Customers cannot refuse the installation of a smart meter for any reason. Id. If a customer does not want a smart meter, their sole remedy is to request that the smart meter be placed at a different location on their property, subject to Tariff Rule 9B's cost-allocation provisions. Id.; Tr. at 418.

If a customer prevents Duquesne Light from accessing its equipment, the Company can terminate their service. 66 Pa. C.S.A. § 1406(a) ("A public utility may notify a customer and terminate service provided to a customer…for…failure to permit access to meters, service connections or other property of the public utility for the purpose of replacement, maintenance, repair or meter reading."); 52 Pa. Code § 56.81 (same); Duquesne Light Company's Tariff Rule 33 ("The company may terminate electric service…in case meter readers or other authorized representatives of the Company cannot gain admittance or are refused admittance to the premises for the purposes of

reading Company meters, inspection and repairs, removal of Company property, responding to an emergency, restoring electric service, rendering the electric facilities safe and reliable, or for any other purpose incident to the service or in case the customer interferes with Company representatives in the performance of their duties.").

C. Like many other common devices, the Company's smart meter network transmits information through brief, low-power radiofrequency communications.

After the Commission approved the Company's Smart Meter Plan, Duquesne Light deployed smart meter technology – commonly called Advanced Metering Infrastructure ("AMI") – throughout its service territory. Duquesne Light's AMI system uses RF to transmit information on a two-way communication system. Tr. at 174, 177, 306.

Duquesne Light's smart meters send communications through the Company's "mesh network" to a collection point (previously, a cell relay, but now, a router). Tr. at 175. At the collection point, a cellular modem communicates back to the utility's head-end system. Id. RF transmissions also travel in the opposite direction (from utility to meter) because the network allows for two-way communications, as required by Act 129. Tr. at 174, 177; 66 Pa. C.S.A. § 2807.

Smart meters operate in a dynamic, self-healing environment, so a smart meter must communicate with its neighbors to maintain the mesh network. Tr. at 211-12. These communications allow smart meters to find a path to the collection point, even if their normal communication path is disrupted by an outage or other event. Id. Because Duquesne Light's smart meters are located close together, they only require low transmission power. Tr. at 312-13.

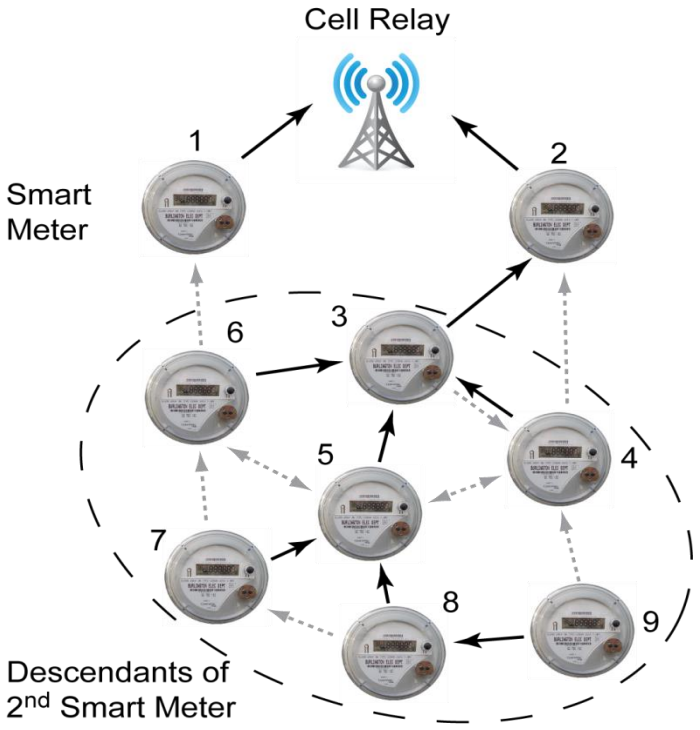

Figure 3. Illustrative example of a smart meter mesh network.[2]

Given Complainant's concerns about RF, it is important to note that RF communications are nothing out of the ordinary. Many household devices – including televisions, radios, cell phones, wireless wi-fi devices for laptops and tablets, baby monitors, cordless phones, and garage door openers – transmit information via RF. Tr. at 177-78. RF also is emitted from many natural sources, such as human beings and the Earth. Tr. at 328-29.

Duquesne Light's use of RF to transmit meter data is also nothing new for Complainant. When the Company's AMR fixed network was operational, the Current Meter transmitted information via RF. Tr. at 417.[3] Complainant raised no concerns about the Current Meter's reliance on RF transmission, nor has she attempted to distinguish the RF from the Current Meter from the smart meter.

[2] This figure is included in DLC Ex. H-2 and H-6.
[3] Duquesne Light started using RF technology in 1996. Tr. at 417.

As shown below, RF from smart meters fall in the "non-ionizing" portion of the electromagnetic spectrum. Tr. at 310-11, 367. Non-ionizing radiation cannot break molecular bonds and has no proven adverse health effects. Tr. at 350-51, 368.

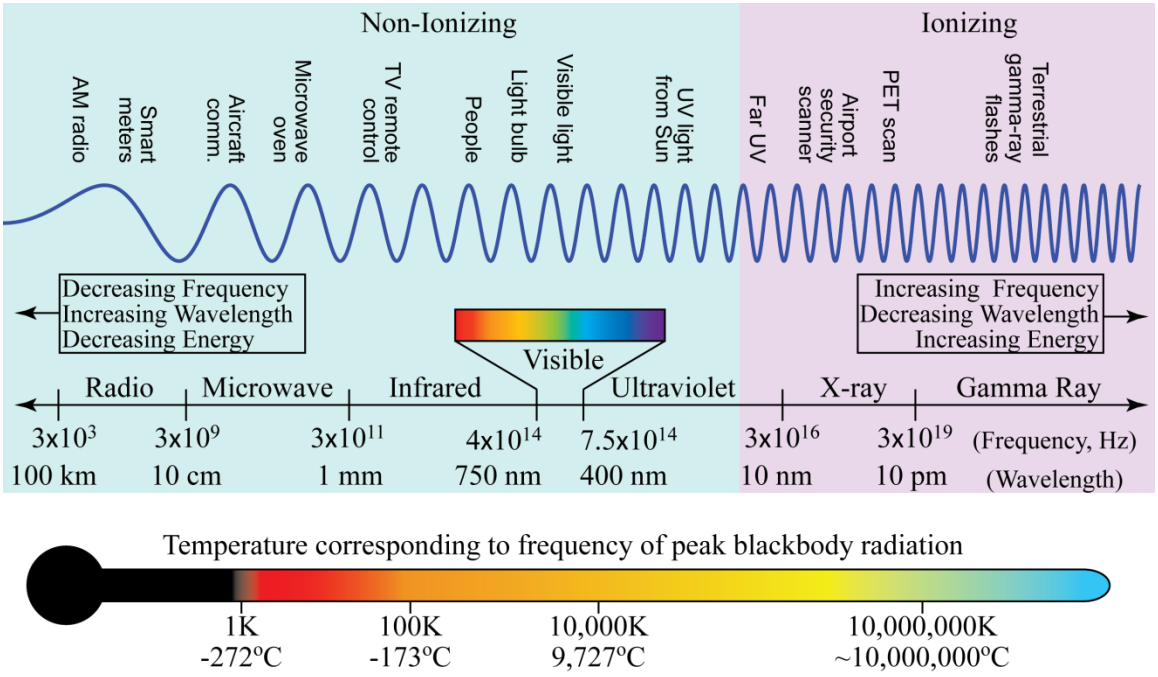

Figure 2. The electromagnetic spectrum and the relationship between frequency, wavelength, energy, and temperature.[4]

D. The RF from the radios in the Company's smart meters is a tiny fraction of the permissible limits set by the FCC and other organizations.

Duquesne Light is deploying Itron's OpenWay Centron smart meter throughout its service territory. That meter carries an FCC identification number of SK9AMI7. Tr. at 173, 221; DLC Ex. G-7. It has an expected "useful life" of 20 years, which is the same as the Company's electromechanical or analog meters.[5] Tr. at 211, 222.

[4] This figure is included in DLC Ex. H-2 and H-6.

[5] Itron determined the meter's expected useful life by performing several rounds of "Accelerated Life Testing," commonly called ALT testing. Tr. at 222. During ALT testing, Itron performs several tests at high temperatures and high humidity while the smart meter is under a "load" designed to simulate real-world

Duquesne Light's smart meter contains two radios: the Local Area Network ("LAN") radio and the Zigbee radio. Tr. at 175, 306, 407.

The LAN radio transmits at 900 megahertz and communicates with nearby smart meters to form the mesh network referenced above. Tr. at 175. Each communication from a LAN radio is incredibly brief (lasting just 20-150 *milliseconds*) and occurs at low power (0.69 watts). Tr. at 180, 315-16.

The LAN radio communicates a variety of important information between Duquesne Light and its smart meters, primarily consumption data (the amount of electricity consumed by the residence, which is used to calculate a customer's monthly bill). Tr. at 409-10. Duquesne Light currently takes two consumption readings per day. Tr. at 416. Complainant believes that smart meters record how often customers use appliances in their homes, so it is important to note that these are *gross* consumption readings, meaning that they measure the *aggregate* consumption in the home. Tr. at 262-63. Duquesne Light does *not* collect consumption data on a granular, appliance-by-appliance basis, nor does the Company send any personally-identifiable information in messages transmitted through its mesh network. Id.

In addition to consumption data, the LAN radio communicates other information that Duquesne Light uses to provide safe and reliable service to its customers, including 60-minute interval data voltage information, "on-demand" reads, tamper events, outages, and other system events that notify the Company of problems relating to the meter. Tr.

conditions. Tr. at 223, 249. Itron initially performs ALT testing during the meter's development stage; it performs additional ALT testing after the development stage to monitor the meter's useful life. Tr. at 223-24.

at 179-80, 409-10, 416. The LAN radio also communicates with nearby meters to help maintain a functioning, synchronized mesh network. Tr. at 179-80.

The ZigBee radio transmits at 2.4 gigahertz and, when enabled by the customer, will communicate consumption data from the meter to certain types of devices within the service address (like an in-home display unit). Tr. at 175, 407.[6] The Zigbee radio is *not* automatically paired with any devices inside the customer's home when Duquesne Light installs a smart meter at a residence. Tr. at 407. It only pairs with a device if the customer requests it from Duquesne Light. Tr. at 177, 407-08. Complainant can decide whether to connect any device inside her home to the Zigbee radio. Tr. at 408.

Complainant asserted that RF emitted from smart meters threatens her health, but the LAN and Zigbee radios easily comply with all applicable health standards for RF emissions, including those set by the Federal Communications Commission ("FCC"). The FCC regulates RF-emitting devices in the United States for intentional and unintentional radiation. Tr. at 187, 321-22, 350.

The FCC has established safe levels, or maximum permissible exposure limits ("MPE"), for intentional RF transmissions. Tr. at 187-88, 322. To set these limits, the FCC relied on input from several health agencies such as the National Council for Radiation Protection, the Institute of Electrical and Electronics Engineers ("IEEE"), the National Institute for Occupational Safety and Health, the Occupational Safety and Health Administration, the Environmental Protection Agency, and the Food and Drug Administration ("FDA"). Tr. at 370-71. The FCC considered both the thermal and non-thermal effects of smart meters in setting its standards. Tr. at 372.

[6] In that situation, Duquesne Light can remotely send information over the mesh network to the smart meter so that it will pair with the customer's in-home device. Tr. at 203-04.

The FCC's standards are based on a comprehensive review of the entire available body of scientific literature, which includes studies of potentially vulnerable populations such as children and the elderly. Tr. at 371. The FCC's standards also incorporate a "safety factor" to the magnitude or "50 or so" to account for the potential variability and uncertainty in the scientific literature and potentially vulnerable populations. Tr. at 324, 371-72. The FCC concluded in 2019 (after a six-year review) that its MPE limits are still valid and protective of human health. Tr. at 373.

The FCC's regulations establish that the MPE to RF fields emitted by the LAN radio is 0.61 milliwatts per square centimeter. Tr. at 187-88, 325; DLC Ex. H-6. The MPE for the Zigbee radio is 1.0 watts per square centimeter. Tr. at 325-26; DLC Ex. H-6. As noted below, the radios in Duquesne Light's meters fall well below those limits—even assuming they operated all day (which they do not). Tr. at 213-14.

Two other organizations – the IEEE and the International Commission on Non-Ionizing Radiation Protection ("ICNIRP") – also set standards for RF emissions. The IEEE developed exposure limits for electromagnetic fields based on lengthy and comprehensive assessments of the scientific literature. DLC Ex. H-2. ICNIRP is an independent, non-governmental scientific organization that sets guidelines to protect the public from potential health effects relating to EMF and RF. Tr. at 376. It is recognized by the World Health Organization ("WHO") as an organization that provides guidance on standards and guidance development relating to non-ionizing radiation. Id. Like the IEEE, it also developed exposure limits for electromagnetic fields after lengthy and comprehensive assessments of the scientific literature. DLC Ex. H-2.

The RF exposure limits established by all three organizations (FCC, IEEE, and ICNIRP) are shown in the table below.

Table 3. Exposure limits specified by the FCC, IEEE, and ICNIRP[7]

	Power Density Limit at 900 MHz		Power Density Limit at 2.4 GHz (W/m^2)		
Agency	**(W/m^2)**	**(mW/cm^2)**	**(W/m^2)**	**(mW/cm^2)**	**SAR Limit (W/kg)**
FCC (CFR §1.1310 and §2.1093)	6	0.6	10	1.0	0.08 (Whole body) 1.6 (over any 1 gram of tissue)
ICNIRP (1998)	4.5	0.45	10	1.0	0.08 (Whole body) 2 (over any 10 grams of tissue)
IEEE, (C95.1, 2019)	4.5	0.45	10	1.0	0.08 (Whole body) 2 (over any 10 grams of tissue)

Note: mW/cm^2 = milliwatts per square centimeter; W/m^2 = watts per square centimeter and 1 mW/cm^2 = 10 W/m2.

Expert testimony at the hearing established that the radios in the Company's smart meters comply with the standards set by all three organizations. Tr. at 326. In fact, the FCC issued a "Grant of Equipment Authorization" in 2011, which is the agency's official verification that the radios in the Company's smart meter meet the FCC's requirements. DLC Ex. G-7; Tr. at 191-92. The Grant of Equipment Authorization remains in effect today. Tr. at 192.

Not only do the radios in the Company's smart meters comply with the FCC's limits, but the amount of RF emitted from the radios is just a tiny fraction of the FCC's MPE limits. Tr. at 188-89, 302-03. As shown below, a person standing outside just one yard from the Company's smart meter will be exposed to only **0.0096%** of the FCC's limits,

[7] This table is included in DLC Ex. H-2 and H-6.

assuming that the smart meter is transmitting at an average "duty cycle."[8] DLC Ex. H-2. If the person stands inside their home at a one yard distance from the smart meter (again assuming an average duty cycle), the percentage drops to just **0.00077%** of the FCC's limits. Id. In comparison, a person would be exposed to much higher relative levels of RF (0.24% of the FCC's limits) from a radio broadcast station located five to ten miles away. Id.

Table 6. Calculations of RF exposure for DLC smart meters and local broadcast stations[9]

Source	Distance from source	Duty Cycle (in a 30-minute period)*	Calculated value (% of FCC limit)
Smart Meter LAN (Inside, Average)†,§	1 yard	0.21%	0.00077
Smart Meter LAN (Outside, Average)	1 yard	0.21%	0.0096
Local Broadcast Stations	~5 – 10 miles away	100%	0.24

* The FCC specifies a 30-minute averaging period in assessing RF exposure.

† The exposure inside the home from the smart meter will be reduced by the exterior wall material, assumed to be plywood. As discussed in Section 1, ~80% of the energy incident on the outer wall will penetrate into the residence. This factor is included in the calculation of exposure inside the residence due to the smart meter.

§ The smart meter preferentially transmits in the forward direction. The amount of energy transmitted toward the back of the smart meter is approximately 10% that of the forward direction (EPRI, 2010). This factor of 10% is included in the calculation of exposure due to the smart meter inside the residence.

E. The scientific and medical evidence does not establish a link between RF exposure below acceptable levels and adverse health effects.

Notably, robust scientific and medical evidence does not establish that RF exposure below accepted guidelines causes any adverse health effects. Tr. at 364-65.

[8] "Duty cycle" is the amount of time that a radio in a smart meter transmits over a set period of time, such as 24 hours. Tr. at 181.

[9] This table is included in DLC Ex. H-2 and H-6.

Many organizations have performed thorough "weight of the evidence" reviews[10] to determine the potential health effects of RF fields, so much so that the WHO stated that more is known about the potential health effects from RF exposure than most chemicals. Tr. at 368-69, 374; DLC Ex. H-1. One of the Company's experts, Dr. Gabor Mezei, opined at the hearing that the potential health effects of RF exposure is a "very heavily researched area," which ensures that conclusions about the potential dangers of RF are drawn from a "robust scientific evidence base." Tr. at 369.

According to Dr. Mezei, the most comprehensive weight of the evidence reviews evaluating the potential health effects of RF were conducted by ICNIRP in 2009, the Health Protection Agency of the United Kingdom[11] in 2012, the International Agency for Research on Cancer ("IARC")[12] in 2013, and the European Union Scientific Committee on Non-Emerging and Newly-Identified Health Risks ("SCENIHR")[13] in 2015. Tr. at 375. All of these studies concluded that the scientific evidence does not establish a cause-and-effect relationship between low level RF exposure (*i.e.*, exposure below currently existing, scientifically-based exposure guidelines) and any adverse health effects, including cancer and non-cancer outcomes. Tr. at 377; DLC Ex. H-1.

Similarly, the WHO concluded that the science does not confirm the existence of any adverse health effects for exposure levels that are below the exposure guidelines. Tr. at 378. The FDA reached the same conclusion. DLC Ex. H-1. In addition, every one

[10] In a "weight of the evidence" review, the reviewing organization systematically identifies all relevant research studies, then gives each study more or less weight depending on its quality. DLC Ex. H-1. The reviewing organization then considers the totality of the evidence before reaching its conclusions. Id.
[11] The Health Protection Agency of the United Kingdom is a governmental agency in the United Kingdom charged with protecting public health. Tr. at 376.
[12] IARC is a cancer research agency that is part of the WHO whose primary goal is to coordinate and conduct research on cancer development and prevention. Tr. at 376.
[13] SCENIHR is a scientific agency under auspices of the European Union that reviews the science relating to non-ionizing radiation.

of the 32 organizations listed in Table 1 of Dr. Mezei's expert report concluded that the scientific evidence does not establish that exposure to RF below existing health limits causes adverse health effects. Tr. at 377-78; DLC Ex. H-1.

In addition, several governmental agencies in the United States have specifically analyzed whether RF emitted by smart meters causes adverse health effects, including: the Maine Center for Disease Control; the California Council on Science and Technology; the Colorado Department of Public Health and Environment; the Michigan Public Service Commission; the Oregon Health Authority; the Public Utility Commission of Texas; the Arizona Department of Health Services; the Vermont Department of Health; the Vermont Public Service Department; and the North Carolina Public Health Division. Tr. at 378-79. None concluded that RF exposure associated with smart meters will cause any adverse health effects. Tr. at 379.

F. The smart meter's contribution to Complainant's RF exposure is negligible.

Since Complainant's health claims revolve around her concerns about RF exposure, it is important to assess the amount of RF exposure she can be expected to receive from Duquesne Light's smart meter at the Service Address. Complainant made no effort to do this, but Duquesne Light did.

As explained in more detail, in light of the short period of time per day that the meter transmits by RF, the low power of its radios, and distance and barriers that will ordinarily be between Complainant and the smart meter, the RF from a Duquesne Light smart meter will be a negligible contribution to her existing RF exposure. Dr. Mezei concluded that she would not suffer any adverse health effects as a result of being exposed to RF from a smart meter. Tr. at 365-66.

The estimated time that a Duquesne Light smart meter would transmit energy during a 24-hour period – commonly called the "duty cycle" – was assessed through a study that analyzed the deployment of roughly 13,000 OpenWay smart meters, which are the ones being deployed by Duquesne Light. Tr. at 181, 183-84, 316. The study found that the average duty cycle of the LAN radio to be just 0.21%, which means that the radio communicates information by RF for just 0.21 percent of the day. Put more simply, the LAN radio transmits RF *for slightly less than three minutes per day on average*. Tr. at 184-85, 318; DLC Ex. F-8, H-2.

Table 1. Duty cycle of DLC smart meters*,†[14]

Duty Cycle Description	Duty Cycle Value
Minimum	0.002% (0.03 minutes per day)
Average	0.21% (2.99 minutes per day)
Maximum	8.0% (115.2 minutes)

* Itron (2015).

† This table includes values after a November 2019 upgrade to the DLC system in order to allow the DLC network to utilize IPv6 standards and architecture. Prior to this upgrade the minimum, average, and maximum duty cycle of the DLC smart meters were 0.02%, 0.06%, and 0.58%, respectively.

One of the Company's expert witnesses, Dr. Benjamin Cotts, explained that a smart meter's duty cycle is "very low" compared to other RF-emitting devices. Tr. at 318.[15] Television and radio broadcast stations, for example, have a 100% duty cycle. Id.

Two other factors further reduce the RF that Complainant will be exposed to from a smart meter: propagation and attenuation. With respect to propagation, because the

[14] This table is included in DLC Ex. H-2 and H-6.

[15] The expected maximum duty cycle for the LAN radio is roughly 8%, meaning that the meter would transmit for 115.2 minutes in a 24-hour period. Tr. at 201-02, 214, 318; DLC Ex. H-6. The estimated minimum duty cycle for the Company's smart meters is about 0.03 minutes per day, which is a fraction of a second. Tr. at 318; DLC Ex. H-6. For a Zigbee radio that is not paired with another device inside the customer's home (which is the option that Complainant will likely choose), the duty cycle is roughly 0.01%, which is slightly less than 10 seconds per day. Tr. at 319; DLC Ex. H-6.

meters communicate with other nearby meters, the RF communications are purposefully directed through the front of the meter and away from the customer's home. Tr. at 178, 337. For that reason, RF emitted from the back of a smart meter is roughly 10 times lower than the amount transmitted through the front. Tr. at 178, 337. The smart meter also sits inside a metal box, which further limits the RF directed towards the home. Tr. at 179. The home's construction materials (*i.e.* exterior walls) further deflect any RF directed towards the home. Tr. at 321.

In addition, in accordance with the principle of attenuation, a person's RF exposure rapidly decreases as the distance from the smart meter increases. Tr. at 320. Because the smart meter sends out a finite amount of power, as the distance from the smart meter increases, the total power becomes distributed over a larger area, thus losing force. Id. For example, a person standing 10 yards from a smart meter receives about 100 times less RF exposure than someone standing one yard away. Tr. at 320-21.

By using the smart meter's estimated duty cycle, as well as the principles of propagation and attenuation, Dr. Cotts could estimate Complainant's expected RF exposure from the Company's smart meter at the Service Address. As depicted in the table below, Dr. Cotts determined that a person standing inside the Service Address and 10 feet from the smart meter would be exposed to just **0.0000007%** of the FCC's limit, assuming that the LAN radio was transmitting at an average duty cycle. Tr. at 338; DLC Ex. H-6. A person 10 feet away from a smart meter outside the home would be exposed to just **0.0000090%** of the FCC'S limit (again assuming an average duty cycle). Tr. at 338; DLC Ex. H-6. Even if Complainant stood outside her home and was only eight inches

away from the smart meter and it transmitted as much as possible (*i.e.*, at the maximum duty cycle), *she still would only be exposed to less than 8% of the FCC's exposure limits.*

Table 7. Example variability of smart meter in different exposure scenarios[16]

Scenario	Forward/Back Transmission Factor	Transmission through Wall Material	Distance from Smart Meter	Duty Cycle	Calculated Value (% of FCC Limit)
Inside Minimum	0.1	0.8	10 feet	0.002%	0.0000007%
Inside Average	0.1	0.8	1 yard	0.21%	0.00077%
Inside Maximum	0.1	0.8	~8 inches	8.0%	0.62%
Outside Minimum	1	1	10 feet	0. 002%	0.0000090%
Outside Average	1	1	1 yard	0.21%	0.0096%
Outside Maximum	1	1	~8 inches	8.0%	7.8%

In light of the above, it is not surprising Complainant already receives much higher levels of RF from many natural and man-made sources, *including from other human beings and the Earth*:

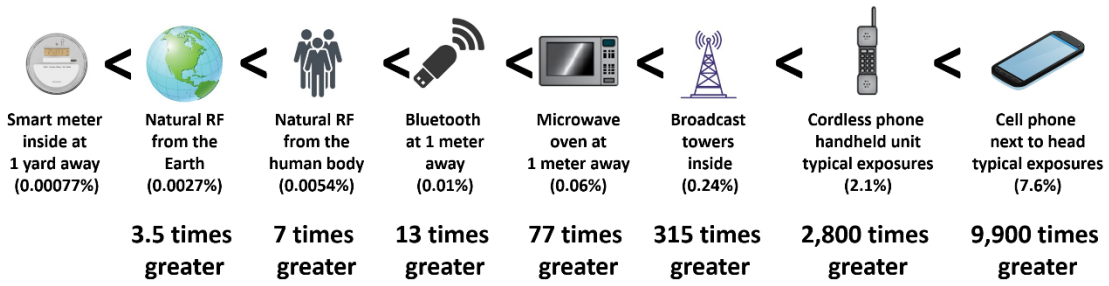

Figure 4. RF exposure of smart meters relative to other RF sources.[17]

[16] This table is included in DLC Ex. H-2 and H-6.
[17] This figure is included in DLC Ex. H-2 and H-6.

G. Duquesne Light's smart meter passed extensive safety and flammability tests and has never caused a fire.

In addition to Complainant's health concerns, she also alleged that smart meters have "an increased risk of fires." Tr. at 72, 150. The extent of Complainant's knowledge about this issue comes from "media reports" and "material online." Tr. at 150, 152. She never personally investigated any fires allegedly caused by a smart meter. Id. She also could not point to a single instance in which Duquesne Light's smart meter caused a fire. Id. In fact, Duquesne Light has installed roughly 620,000 smart meters throughout its service territory. Tr. at 408. They have not caused any fires. Tr. at 235, 409.

Furthermore, Duquesne Light's smart meters comply with the applicable safety standards set by ANSI and have been certified by UL. Tr. at 224, 228-29. Complainant produced no evidence to the contrary.

With respect to the ANSI standards, ANSI C12.1 and ANSI C12.20 establish safety and performance criteria for electric revenue meters. Tr. at 229. They also describe acceptable in-service performance levels for those meters. Id. Itron tested the Company's smart meter for compliance with ANSI C12.1 and ANSI C12.20. Id. Trained employees of Itron's "qualification lab" ran a battery of tests to verify compliance, including but not limited to No Load and Starting Load tests; Load Performance and Stability tests; tests evaluating the Effect of High Voltage Line Surges; Temperature Extremes testing; and Voltage Interruption tests. Tr. at 232-33; DLC Ex. G-1. The smart meter passed all of the tests that Itron conducted as part of ANSI C12.1 and ANSI C12.20. Tr. at 233.

Itron also submitted the Company's smart meter to UL for testing under UL 2735 (Standards for Safety for Electric Utility Meters). Tr. at 225-26. UL 2735 is a certification standard that applies to electric utility meters, including smart meters. Tr. at 225-26, 252.

If a meter is UL-certified, it means that it has undergone extensive testing by UL and meets UL's certification standards. Tr. at 227; DLC Ex. G-3.

UL performed several tests on the Company's smart meter before certifying that it was safe. Tr. at 228. In particular, UL conducted a "single vault condition test," ANSI C12.1 testing, mechanical testing, and flammability testing. Id. UL certified that Duquesne Light's smart meter complies with UL 2735, which validates that it is safe. Tr. at 225, 227; DLC Ex. G-3.

Itron also performed its own flammability tests. Tr. at 234. Itron validates flammability to a standard called "IEC 62052-11," which effectively requires that the smart meter "shouldn't be ignited by thermal overload of live parts in contact with them." Id. To ensure that its smart meters meet this standard, Itron tests to "IEC 695-2-11," which is a "scalding hot-water based test." Id. To perform this test, Itron injects a "glow wire" heated to 1,760 degrees Fahrenheit into the smart meter's base for 30 seconds. Id. Itron monitors the test to ensure that the meter emits no flames. Id. Itron performs similar testing on the smart meter's outer cover. Tr. at 234-35. Duquesne Light's smart meter passed Itron's flammability tests. Id.

H. Duquesne Light's smart meter only collects aggregate consumption usage information, and the Company protects customer information through robust cybersecurity safeguards.

Complainant also contends that smart meters are "activity-monitoring devices" that record things like "what appliances I'm using and when," but she could not point to any specific documents or other evidence at the hearing to support this claim. Tr. at 153. Rather, she simply said it seemed like a "common-sense conclusion to draw," even

though she admittedly is not a certified electrician or electrical engineer and did not claim to possess any other relevant knowledge or experience about this topic. Id. at 154-56.

Contrary to Complainant's claims, Duquesne Light does not gather information about how often customers use specific appliances in their homes. Tr. at 262-63.

The "usage information" passing through the smart meter network is "aggregate information" for a household; it does not identify individual appliance use within the customer's home. Tr. at 262-63. Duquesne Light's smart meters gather gross consumption information, which in turn is used for monthly billing. Tr. at 409. There is no evidence to the contrary. Notably, there is no personally-identifiable information such as Social Security numbers, customer names or address, or bank account information in the consumption data or other messages that Duquesne Light sends through its smart meter network. Tr. at 263.

Furthermore, Duquesne Light deploys numerous cybersecurity measures to protect the information collected by its smart meters, which is a key reason that the Company's smart meter network has never been hacked. Tr. at 276.

Duquesne Light modeled its cybersecurity protections on the framework established by the National Institute of Standards and Technology ("NIST"), which is part of the United States Department of Commerce. Tr. at 260-62. Duquesne Light performs ongoing evaluations (including self-evaluations) and third-party audits to ensure that its cybersecurity protections continue to meet NIST's standards. Tr. at 262.

Duquesne Light deploys many cybersecurity tools to protect its information. First, it uses "authentication" to ensure that devices in the mesh network that are communicating with each other are permitted to do so. Tr. at 267-68. In addition, all

communications sent within Duquesne Light's mesh network are encrypted using the "Advanced Encryption Standard," commonly called as AES 128. Tr. at 268-70, 281. AES 128 has been certified and endorsed by the Federal Information Processing Standards, NIST, and the National Security Agency. Tr. at 270. Due to these encryption protocols, if an unauthorized recipient intercepted a communication in Duquesne Light's smart meter network, the information would be "illegible" unless the recipient possessed the required certificate and encryption key. Tr. at 270-71.

In addition to tools like authentication and encryption, Duquesne Light implements security event monitoring to protect its mesh network. Tr. at 271. Security event monitoring correlates and monitors events from multiple devices in the mesh network such as firewalls, servers, meters, signing and decryption devices, and authentication or authorization events. Tr. at 282-83. It allows the Company to identify anomalous events in its network to determine if they are authorized or unauthorized. Tr. at 271.

Another cybersecurity tool – network segmentation – splits the Company's smart meter network into sub-networks. Tr. at 272. This improves the network's security by allowing Duquesne Light to respond to a security incident before it becomes a widespread problem. Tr. at 272-73.

The Company also uses several protections within its data collection engine itself, such as multiple redundant firewalls, identity access management controls, security event monitoring, security patching, and vulnerability management. Tr. at 273. A firewall only allows certain traffic from certain sources to travel to a given destination and thus limits what can enter a secure environment. Id. Duquesne Light sets protocols to control what traffic can enter the Company's firewalls. Tr. at 274.

The Company's data collection engines also run signature-based antivirus that looks for known malicious software, as well as heuristic-based anti-malware protection.[18] Id. If these safeguards detect any traffic that violates the Company's protocols, the traffic will be flagged as an "anomalous event." Tr. at 275. The signature-based anti-virus protection and the heuristic-based anti-malware protection operate independently, so if one program misses an anomalous event, the other program should pick it up. Tr. at 274-75.

Duquesne Light also restricts access to data that is gathered by its smart meters and stored in the Company's data collection engine, meaning there are strict limits on who can view what information and when. Tr. at 275. Duquesne Light limits access to information to those employees who need to obtain the data to perform their jobs. Tr. at 275-76. Duquesne Light further controls access to information by requiring complex passwords that frequently change. Tr. 276. In addition, Duquesne Light does not sell customer information to third-parties with whom it does not have a business relationship. Tr. at 413-14; DLC Ex. I-1.

Complainant offered no evidence at the hearing contradicting or calling into question any of the above information. Nor did she offer any witnesses or evidence suggesting that Duquesne Light's information security practices are unreasonable.

I. Duquesne Light repeatedly informed Complainant that it had to install a smart meter at the Service Address and tried to perform the exchange two different times, but Complainant blocked both attempts.

Over a two-month period beginning in early April 2018, Duquesne sent three letters and made two phone to Complainant at the Service Address. Tr. at 79-80, 88, 96, 443-

[18] Heuristic-based anti-malware does not require a signature; rather, it baselines the behavior of the system and looks for anomalous behavior. Id. at 274.

44, 446-47; DLC Ex. M-1, M-2, N, O. These phone calls and letters informed Complainant, in sum, that the Company was required to install a smart meter at the Service Address and provided information about smart meters and the exchange process. Id.

A Duquesne Light contractor visited the Service Address two different times during this two-month period to exchange the meter. Tr. at 443, 448; DLC Ex. M-1. Complainant blocked both attempted exchanges. Tr. at 81-82, 443, 448; DLC Ex. M-1. The Company thus could not install a smart meter during those visits and has not tried to install a smart meter at the Service Address since Complainant filed the Formal Complaint. Tr. at 75-77, 448; DLC Ex. M-1.[19] The Current Meter is presently installed at the Service Address. Tr. at 417, 439.

J. Complainant presented no evidence at the hearing to support her claims, while Duquesne Light presented overwhelming evidence refuting her allegations.

On June 14, 2018, Complainant filed a Formal Complaint with the Commission. She objected to Duquesne Light's attempt to install a smart meter at the Service Address and raised health, safety, and privacy concerns. Tr. at 116. About eight months later, she filed an Amended Complaint that raised the same basic allegations. Duquesne Light filed a timely Answer and New Matter to both complaints; they denied Complainant's allegations and stated that Act 129 required the Company to install a smart meter at the Service Address.

On February 27, 2020, the parties participated in a lengthy telephonic hearing. Complainant testified as a lay witness; she presented no other witnesses. She did not

[19] Counsel for Duquesne Light actually sent a letter dated November 19, 2018 to Complainant stating that the Company would place a tab on the meter at the Service Address indicating that it should not be exchanged while her Formal Complaint was pending. Tr. at 450.

claim to be an expert witness, and she conceded that she is not an electrical engineer or certified electrician. Tr. at 107, 155.

Moreover, Complainant presented no medical evidence or records at the hearing, let alone any evidence or records establishing a link between RF and health problems. Tr. at 147-48. She also does not claim to have a specific health condition that makes her highly sensitive to RF, nor does she claim to be a member of a group that is allegedly vulnerable to harm from RF. Id.

As for fire concerns, Complainant presented no evidence or testimony establishing that Duquesne Light's smart meters have caused a fire. Tr. at 152. She admitted that she never personally investigated any fire allegedly caused by a smart meter. Tr. at 151-52.

Regarding her privacy concerns, Complainant admitted that she "can't point to any specific documents" to support her claim that smart meters can detect which specific appliances are being used inside her home. Tr. at 153-54. She also conceded she has never seen any documents from Duquesne Light or Itron establishing that the Company's smart meters can differentiate between different appliances when transmitting consumption data to Duquesne Light. Tr. at 155-56. As for what would be an acceptable level of cybersecurity, Complainant stated she was seeking a method that was more reliable than the best encryption process. Tr. at 157-58.

Duquesne Light presented testimony from two expert witnesses: Dr. Benjamin Cotts and Dr. Gabor Mezei.[20] Duquesne Light also presented testimony from five fact

[20] The Presiding ALJ accepted Dr. Cotts as an expert witness in the field of electrical engineering, physics, and electromagnetics with an emphasis on the field effects of electromagnetic frequency and RF. Tr. at 300-01. The Presiding ALJ accepted Dr. Mezei as an expert witness in the field of epidemiology, health

witnesses: Michael Belanger (Product Manager for Itron); Steve Wright (Senior Product Manager for Electricity Metering for Itron); Michael Tallent (Chief Information Security Officer for Duquesne Light); Michael Secchiutti (Senior Manager of Smart Meter Operations for Duquesne Light); and Roxanne Morris (Regulatory Consumer Relations Supervisor for Duquesne Light). Tr. at 171-72, 220, 258-59, 403, 436.

III. APPLICABLE LEGAL STANDARD

To prevail, a complainant generally must demonstrate that the public utility violated the Public Utility Code or a Commission regulation or order. Bostard v. Metropolitan Edison Co., Docket No. C-2018-3002753, 2020 WL 1906057, at *2 (Pa. P.U.C. Mar. 23, 2020) (Myers, ALJ). In smart meter cases, the complainant has the burden of proving, by a preponderance of the evidence, that the utility is responsible for the problem described in the Complaint. Kreider v. PECO Energy Co., Docket No. P-2015-2495064, 2015 WL 5256653, at *11 (Pa. P.U.C. Sept. 3, 2015). The preponderance of the evidence standard requires proof by a greater weight of the evidence. Commonwealth v. Williams, 732 A.2d 1167, 1187 (Pa. 1999); Bostard, 2020 WL at *3.

When presented with a challenge to a smart meter installation, the ALJ's role is "to determine based on the record in this particular case, whether there is sufficient evidence to support a finding that the Complainant was adversely affected by the smart meter or whether [the utility's] use of a smart meter will constitute unsafe or unreasonable service in violation of Section 1501 under the circumstances in this case." Bostard, 2020 WL at *4 (citing Kreider, 2015 WL 5256653 and Frompovich v. PECO Energy Co., Docket No. C-2015-2474602, 2018 WL 2149249 (Pa. P.U.C. May 3, 2018)).

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sciences, and research with an emphasis on electromagnetic fields and radiofrequency fields. Tr. at 363-64.

IV. ARGUMENT

The Presiding ALJ should dismiss all aspects of the Formal Complaint. There is simply no evidence – let alone a preponderance of the evidence – establishing that Complainant would be adversely affected by the installation of a smart meter at the Service Address. Nor is there any evidence establishing that the installation of a smart meter constitutes unsafe or unreasonable service by Duquesne Light.

Duquesne Light is required to install a smart meter at the Service Address under Act 129, the Commission's Implementation Order, and the Company's Smart Meter Plan and Commission-approved Tariff. The Company provided - and continues to provide - adequate, efficient, safe, and reasonable service to Complainant. Complainant presented no evidence to support her claims that the Company's smart meter will harm her health, threaten her safety, or invade her privacy. Conversely, Duquesne Light offered overwhelming evidence that its smart meters are safe and reliable and will not violate Complainant's privacy.

A. Duquesne Light must install a smart meter at the Service Address and can terminate Complainant's service if she continues to block the installation.

1. Duquesne Light must install a smart meter at the Service Address.

The Presiding ALJ should reject Complainant's claim that Duquesne Light cannot install a smart meter at the Service Address for several reasons. First, Act 129's plain language clearly requires the Company to install a smart meter. It states in relevant part:

> 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; (ii) In new building construction; (iii) *In accordance with a depreciation schedule not to exceed 15 years.*

66 Pa. C.S.A. § 2807(f)(2) (emphasis added).

The Commission also issued an Implementation Order establishing guidelines for smart meter technology procurement and installation. See Smart Meter Procurement and Installation, Docket No. M-2009-2092655 (Implementation Order entered June 24, 2009).

The Commission has repeatedly ruled that the use of the word "shall" in Act 129 indicates the General Assembly's direction that all customers 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, ALJ). No provision in the Public Utility Code or the Commission's Regulations or Orders allows a customer to "opt out" of receiving a smart meter. Hoffman-Lorah v. PPL Elec. Util. Corp., Docket No. C-2018-2644957, 2019 WL 2325713, at *28 (Pa. P.U.C. May 23, 2019); Paul v. PECO Energy Co., Docket No. C-2015-2475355, 2018 WL 3093596, at *4-5 (Pa. P.U.C. June 14, 2018); Frompovich, 2018 WL at *4; Povacz v. PECO Energy Co., Docket No. C-2012-2317176, 2013 WL 392699, at *6 (Pa. P.U.C. Jan. 24, 2013).[21] Without additional legislation from the General Assembly, the Commission cannot prohibit a utility from installing a smart meter at a service address, even if a customer does not want one. Schmukler v. PPL Elec. Utilities Corp., C-2017-2621285, 2018 WL 4185440, at *27 (Pa. P.U.C. Aug. 16, 2018) (Barnes, ALJ).

These prior decisions by the Commission and the Presiding ALJ must be upheld here under the rule of *stare decisis*. This rule states, "[f]or the sake of certainty,

[21] The Commission has repeatedly stated that if a customer wants to opt-out of receiving a smart meter, the customer must lobby the General Assembly to change the law rather than seeking relief from the Commission. Myers v. PPL Elec. Utilities Corp., Docket No. C-2017-2620710, 2018 WL 4185437, at *22 (Pa. P.U.C. Aug. 16, 2018) (Barnes, ALJ); Kline v. PPL Elec. Utilities Corp., Docket No. C-2017-2621072, 2018 WL 4185436, at *15 (Pa. P.U.C. Aug. 16, 2018) (Barnes, ALJ).

a conclusion reached in one case should be applied to those which follow, if the facts are substantially the same, even though the parties may be different." Freed v. Geisinger Med. Ctr., 971 A.2d 1202, 1212 (Pa. 2009). *Stare decisis* is the preferred legal course because "it promotes the evenhanded, predictable, and consistent development of legal principles, fosters reliance on judicial decisions, and contributes to the actual and perceived integrity of the judicial process." Id. The Commission has applied *stare decisis* to its prior holding that Act 129 requires the universal deployment of smart meters. See Bervinchak v. PPL Elec. Utilities Corp., Docket No. C-2016-2577527 and Docket No. C-2016-2572824, 2018 WL 4185438, at *15 (Pa. P.U.C. Aug. 16, 2018) (Barnes, ALJ) (*stare decisis* precedent at the Commission level requires a finding that Act 129 contains no opt-out); Zimmerman v. PPL Elec. Utilities Corp., Docket No. C-2017-2615038, 2018 WL 4185439, at *15 (Pa. P.U.C. Aug. 16, 2018) (Barnes, ALJ) (same).

Here, the Presiding ALJ should apply the rule of *stare decisis* and hold that Complainant cannot opt-out of receiving a smart meter. Like the complainants in similar previous cases, Complainant here is attempting to opt-out of receiving a smart meter. Complainant's interpretation of Act 129 misconstrues its plain language, which states that electric distribution companies with more than 100,000 customers "shall furnish smart meter technology…in accordance with a depreciation schedule not to exceed 15 years." 66 Pa. C.S.A. § 2807(f)(2) (emphasis added).

Furthermore, Duquesne Light's Tariff establishes that the Company can install a smart meter at the Service Address. Commission-approved tariffs have the force of law. Warren v. Duquesne Light Co., Docket No. F-2014-2399085, 2014 WL 3834561, at *3

(Pa. P.U.C. July 15, 2014) (Long, ALJ). Rule 9B of the Company's Tariff provides that smart meters conforming to Duquesne Light's standards *must* be installed at *each* metered service premises:

> **B. Meter Relocation for all Customers**
>
> Pursuant to Act 129 of 2008; the Commission's Smart Meter Procurement and Installation Implementation Order entered June 24, 2009, at Docket No. M-2009-2092655; and Duquesne Light's Smart Meter Procurement and Installation Plan, approved in relevant part by Order entered April 7, 2017, at Docket No. P-2015-2497267; **smart meter(s) conforming to Company standards must be installed at each metered service premises. Customers may not decline smart meter installation for any reason. Instead, as their sole remedy, customers may designate an alternative location on the premises for the smart meter.** The Company shall relocate the smart meter to such alternative location where (i) the relocation (including associated customer service equipment) conforms to the Company's "Electric Service Installation Rules" (see Rule No. 6) and the National Electric Safety Code, as determined by the Company in its sole judgment; (ii) the relocation can be readily, safely, and reliably interconnected to the Company's facilities, as determined by the Company in its sole judgment; (iii) the customer provides any easements, permits, or other governmental or third-party approvals the Company deems necessary to accommodate such relocation; and (iv) the Company receives, in advance, payment for the Company's estimated total direct and indirect costs including the related income tax of such relocation.

DLC Ex. D-2.

In light of Act 129, the Commission Implementation Order, and the Company's Tariff, it is clear that Duquesne Light can - and must - install a smart meter at the Service Address.

2. Duquesne Light can terminate Complainant's service if she continues to block the installation of a smart meter.

The Company's Tariff establishes that Duquesne Light can terminate Complainant's service if she continues to block the installation of a smart meter. Rule 22

of the Tariff authorizes Company representatives to access the Company's equipment for a host of enumerated reasons:

> 22. ACCESS TO PREMISES Company representatives, who are properly identified, **shall have full and free access to the customer's premises at all reasonable times for the purpose of reading Company meters, for inspection and repairs, for removal of Company property, or for any other purpose incident to the service. The Company shall have the right to access customer owned facilities and equipment at all hours for the purposes of responding to an emergency, restoring electric service, rendering the electric facilities safe and reliable, or for the purpose of reducing the likelihood of damage to the Company's facilities or equipment.** The customer should immediately communicate with the Company in case of any question as to the authority or credentials of Company representatives. A customer's failure to provide access may be grounds for service termination pursuant to Rule No. 33 herein.

Rule 33 of the Tariff authorizes Duquesne Light to terminate service and remove its equipment from the customer's property if the Company is blocked proper access to its equipment:

> 33. INACCESSIBILITY **The Company may terminate electric service and remove its equipment from the premises upon reasonable notice in case meter readers or other authorized representatives of the Company cannot gain admittance or are refused admittance to the premises for the purposes of reading Company meters, inspection and repairs, removal of Company property, responding to an emergency, restoring electric service, rendering the electric facilities safe and reliable, or for any other purpose incident to the service or in case the customer interferes with Company representatives in the performance of their duties.** When a residential customer or a residence is involved, the Company will comply with the provisions of 52 Pa. Code Chapter 56, "Standards and Billing Practices for Residential Utility Service" and 66 Pa.C.S. § 1406, "Termination of Utility Service."

These Tariff provisions have the force of law and collectively establish (i) that Duquesne Light's representatives must have full and free access to the Service Address at all reasonable times to exchange the meter, and (ii) that Duquesne Light can terminate

Complainant's electric service and remove its equipment from the Service Address if she fails to grant proper access to Company representatives.

The Commission has repeatedly recognized that a utility can terminate a customer's service if the customer prevents the utility from accessing its equipment. 66 Pa. C.S.A. § 1406(a)(4); 52 Pa. Code § 56.81(3); Landis v. PPL Elec. Utilities Corp., Docket No. C-2018-3002142, 2020 WL 2764458, at *14 (Pa. P.U.C. May 21, 2020); Beglin v. Pa. Elec. Co., Docket No. C-2018-3005272, 2020 WL 3288041, at *8 (Pa. P.U.C. June 10, 2020) (Watson, ALJ).

As noted above, Complainant has already affirmatively prevented Company personnel from performing the meter exchange twice. Tr. at 81-82, 443, 448; DLC Ex. M-1. If Complainant continues to prevent the exchange, then Duquesne Light can terminate her service in accordance with its Tariff.

B. The Formal Complaint should be dismissed because Duquesne Light provided - and continues to provide - adequate, efficient, safe, and reasonable service to Complainant.

Since Duquesne Light must install a smart meter at the Service Address, the only remaining issue is whether the Company's smart meter practices are adequate, efficient, safe, and reasonable, as required by Section 1501 of the Public Utility Code. 66 Pa. C.S. § 1501.

The Presiding ALJ should reject Complainant's health, safety, and privacy claims because she presented no evidence to support her allegations. Conversely, Duquesne Light presented overwhelming evidence that its smart meters comply with all health and safety standards and will not violate Complainant's privacy rights.

1. Complainant's health claims are completely undermined by the record evidence.

The Presiding ALJ should reject Complainant's claim that the Company's smart meters will damage her health. Complainant presented no medical evidence or medical witnesses at the hearing, nor any medical records demonstrating that RF emitted from a smart meter will harm her. Tr. at 147-48. She also does not claim to suffer from a specific health condition that makes her sensitive to RF or that she is a member of a group that is allegedly vulnerable to harm from RF. Id. Rather than presenting competent evidence, Complainant merely offered her sweeping, generalized opinion that smart meters harm everyone exposed to them. Complainant's personal beliefs, however, "no matter how strongly held, do not constitute evidence." Lamagna v. Pa. Elec. Co., Docket No. C-2017-2608014, 2018 WL 6124353, at *15 (Pa. P.U.C. Oct. 30, 2018) (Watson, ALJ); see also Zimmerman, 2018 WL at *9 (Barnes, ALJ) (bald assertions about alleged health problems arising from smart meters is not evidence).

In contrast, Duquesne Light presented overwhelming evidence that its smart meters pose no health risks. First, through the clear, credible, and unchallenged testimony of Dr. Benjamin Cotts, who was accepted by the Presiding ALJ as an expert witness in the field of electrical engineering, physics, and electromagnetics with an emphasis on the field effects of electromagnetic frequency and RF (see Tr. at 300-01), Duquesne Light proved that both radios in its smart meters emit just a tiny fraction of the applicable RF limits set by respected organizations like the FCC, IEEE, and ICNIRP. Tr. at 188-89, 302-03. The FCC issued a "Grant of Equipment Authorization" for Duquesne Light's smart meter, which is the agency's official approval that the smart meter satisfies its exposure limits. Tr. at 191-92.

Moreover, Dr. Cotts used the smart meter's estimated duty cycle, as well as the principles of propagation and attenuation, to demonstrate that Complainant would be exposed to a tiny portion of the RF exposure limits once a smart meter is installed at the Service Address.

Table 7. Example variability of smart meter in different exposure scenarios[22]

Scenario	Forward/Back Transmission Factor	Transmission through Wall Material	Distance from Smart Meter	Duty Cycle	Calculated Value (% of FCC Limit)
Inside Minimum	0.1	0.8	10 feet	0.002%	0.0000007%
Inside Average	0.1	0.8	1 yard	0.21%	0.00077%
Inside Maximum	0.1	0.8	~8 inches	8.0%	0.62%
Outside Minimum	1	1	10 feet	0. 002%	0.0000090%
Outside Average	1	1	1 yard	0.21%	0.0096%
Outside Maximum	1	1	~8 inches	8.0%	7.8%

Duquesne Light also proved that many other natural and man-made devices emit much higher levels of RF than the radios in the Company's smart meters.

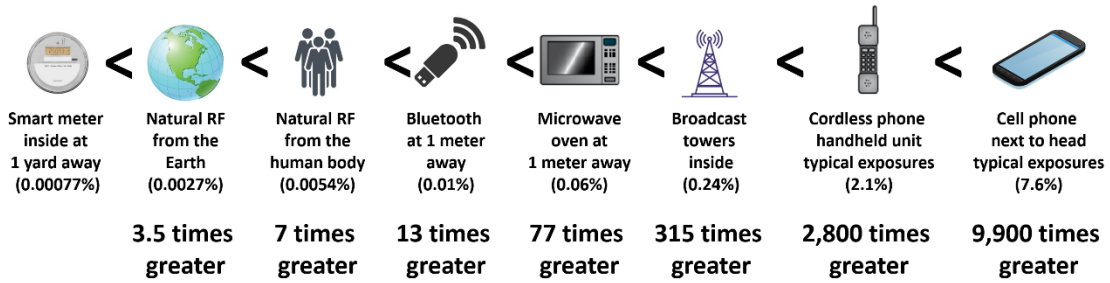

Figure 4. RF exposure of smart meters relative to other RF sources.[23]

[22] This table is included in DLC Ex. H-2 and H-6.
[23] This figure is included in DLC Ex. H-2 and H-6.

The Commission has repeatedly ruled that it is reasonable for a utility to seek to install smart meters that comply with FCC regulations. See, e.g., Murphy v. PECO Energy Co., Docket No. C-2015-2475726, 2018 WL 1745254, at *21 (Pa. P.U.C. Feb. 21, 2018) (Heep, ALJ) ("As for the AMI meter, PECO selected and installed smart meters that meet FCC maximum exposure to EFs limits … [i]t was not and is not unreasonable for PECO to seek to install these meters in accordance with the Act 129 installation plan approved by the Commission."); Ottaviano v. PECO Energy Co., Docket No. F-2016-2542081, 2018 WL 937069, at *10-11 (Pa. P.U.C. Jan. 17, 2018) (Heep, ALJ) (dismissing the complainant's claims after finding that utility's smart meter complies with FCC standards).

Similarly, the Commission has ruled that the installation of a smart meter will not exacerbate a complainant's existing health conditions if the complainant is exposed to much higher levels of RF in their daily life through other sources. See Zimmerman, 2018 WL 4185439, at *9 (holding that there was insufficient evidence to prove that RF fields emitted from a smart meter will exacerbate the complainant's health conditions because the smart meter emitted RF for a short duration each day and the complainant was exposed to much higher levels of RF from nearby TV towers); Caesar v. PECO Energy Co., No. C-2017-2605462, 2019 WL 365646, at *10-12 (Jan. 11, 2019) (ruling that the complainant could not establish a *prima facie* case that the installation of a smart meter at her residence would be harmful to her health because her current RF exposure from other sources is significantly greater).

After Dr. Cotts established that the RF emitted from the radios in the Company's smart meters are well below accepted limits, Duquesne Light proved through the testimony of Dr. Gabor Mezei, an epidemiologist accepted as an expert in the field of

epidemiology, health sciences, and research with an emphasis on electromagnetic fields and radiofrequency fields (see Tr. at 363-64), that there is no established connection between RF exposure below legally-accepted limits and adverse health effects. Dr. Mezei testified that many reputable agencies have conducted thorough, weight of the evidence studies evaluating whether RF exposure below prescribed legal limits causes adverse health effects. Tr. at 375-77. All of them concluded that there is no scientific evidence establishing a cause and effect relationship between low-level RF exposure and adverse health effects. Tr. at 377-78.

Duquesne Light further established that several governmental agencies in the United States have specifically analyzed whether smart meters cause adverse health effects. Tr. at 378-79. None of these agencies concluded that RF exposure associated with smart meters will cause any adverse health effects. Tr. at 379.

Dr. Mezei's conclusion that there is no evidence suggesting that Complainant will be harmed by the installation of a smart meter at the Service Address (see Tr. at 366) is consistent with many past findings by the Commission, which have rejected claims that the installation of a smart meter will cause adverse health effects even if it complies with applicable health standards. Bervinchak, 2018 WL at *12 (rejecting the complainant's claim that the installation of a smart meter will cause health problems after the utility company's expert witness testified that scientific evidence does not establish link between exposure to RF fields and adverse health effects); Ottaviano, 2018 WL 937069 at *10-11 (holding that smart meter would not have an adverse health effect on the complainant after the utility company's expert witness testified that numerous studies have concluded that RF fields do not cause adverse health effects).

In sum, as noted above, the Commission has repeatedly dismissed Formal Complaints like this one where the utility's smart meters complied with existing RF limits and there was no proof that the installation of a smart meter would exacerbate the complainant's existing health conditions. Murphy, 2018 WL at 1; Ottaviano, 2018 WL at *1; Zimmerman, 2018 WL at *1; Caesar, 2019 WL at *1; Bervinchak, 2018 WL at *1. Accordingly, Complainant's health claims should be dismissed.

2. Duquesne Light's smart meters comply with all applicable safety standards and are not a fire hazard.

The Presiding ALJ also should reject Complainant's claim that Duquesne Light's smart meters are a fire hazard or otherwise unsafe. Complainant has no knowledge, qualifications, or experience that would lend any credibility to this bald allegation. She did not claim to be an expert witness on any subject, let alone fire issues. Tr. at 107. She never personally investigated any fires allegedly caused by a smart meter. Id. at 150-52. She could not point to a single instance in which Duquesne Light's smart meter caused a fire. Id. In fact, the extent of Complainant's knowledge about this issue comes from hearsay sources, including "media reports" and "material online." Id. Complainant did not attempt to offer any of these reports or materials into evidence at the hearing. Id. at 150.[24]

In contrast, Duquesne Light presented overwhelming evidence that its smart meters passed extensive testing (including flammability testing) and meet all applicable safety standards. First, Duquesne Light proved that its smart meters have been certified by UL under the 2735 safety standard, which applies to electric utility meters (including

[24] In administrative proceedings, a finding of fact cannot be based solely on hearsay. Frompovich, 2018 WL at *11. Therefore, even if Complainant attempted to offer these articles or media reports into evidence at the hearing, they are hearsay and could not form the basis for a finding of fact.

smart meters). Tr. at 225-26, 252. UL conducted numerous tests - including flammability tests - on the Company's smart meter before granting this certification. Tr. at 228. The Commission has found that UL certification is evidence that the utility is providing safe and reasonable service. Ottaviano, 2018 WL 937069 at *11 (finding that utility company's smart meters were safe because they passed all UL testing and certification requirements); Caesar, 2019 WL 365646 at *13 (rejecting complainant's claim that the meter posed a fire hazard after finding that the meter complied with ANSI and UL standards); Eckstein v. PECO Energy Co., No. F-2017-2601990, 2018 WL 2085879, at *9 (Mar. 26, 2018) (ruling there was no basis to find that smart meters were a fire hazard because they had passed all UL testing and no evidence was introduced establishing that meter was a fire risk).

Duquesne Light also proved that its smart meters satisfy the applicable ANSI standards (ANSI C12.1 and C12.20), which establish safety and performance criteria for electric revenue meters. Tr. at 229. Itron ran numerous tests to determine if the smart meter met the ANSI standards. Tr. at 232-33; DLC Ex. G-1. The smart meter passed all of the tests and complies with ANSI C12.1 and C12.20. Tr. at 233. The Commission has consistently held that compliance with ANSI standards is evidence of reasonable service. Lucey v. Metropolitan Edison Co., Docket No. C-2018-3003679, 2020 WL 1673939, at *10 (Pa. P.U.C. Mar. 2, 2020) (Heep, ALJ) (finding that utility's smart meter satisfied ANSI standards and rejecting claim that the meter posed a fire hazard); Biconik v. Pa. Elec. Co., Docket No. C-2017-2632380, 2020 WL 3288045, at *5 (Pa. P.U.C. June 12, 2020) (same).

In addition, Duquesne Light proved that its smart meters passed extensive flammability testing performed by Itron, which are described in more detail in Section II(G) above. Tr. at 234. This provides further proof that the smart meters are safe and do not pose a fire hazard.

Finally, Duquesne Light established that it has installed roughly 620,000 smart meters throughout its service territory; none have caused a fire. Tr. at 235, 408-09. In addition, Steve Wright, a Senior Product Engineer for Electricity Metering with Itron, testified that the type of Itron smart meter being deployed by Duquesne Light has never caused a fire since it has been deployed. Tr. at 235. The Commission has routinely dismissed claims alleging that a smart meter poses a fire hazard where the evidence proves that the make and model at issue has never caused a fire. Bervinchak, 2018 WL 4185438 at *13 (rejecting claim that smart meters pose a fire hazard because the meter met all national standards, including ANSI and UL, and there had been no reported fires regarding the make and model of the smart meter); Ottaviano, 2018 WL 937069 at *11 (dismissing claim that smart meters pose a fire hazard because there was no evidence that the type of meter installed at complainant's residence had ever been subject to or cause a fire); Zimmerman, 2018 WL 4185439 at *10 (ruling that the meter was not a fire hazard because the utility had deployed roughly 840,000 meters and there was no evidence that the meters had caused any fires).

In sum, Complainant provided no evidence that Duquesne Light's smart meters pose a fire hazard, while the Company presented voluminous testimony and documentary evidence proving that its smart meters passed extensive testing by UL and Itron. Duquesne Light further proved that its smart meters have never caused a fire after being

installed in the Company's service territory. Accordingly, this claim has no merit and should be dismissed.

3. Complainant's privacy claims are based on a misunderstanding of the information actually collected by Duquesne Light's smart meters—which deploy state of the art cybersecurity protections.

The Presiding ALJ also should reject Complainant's claim that Duquesne Light's smart meter will violate her privacy. Once again, Complainant offered no evidence to support this claim other than her own opinion, which is not evidence. And even if Complainant's opinion about cybersecurity matters could be considered, it would be entitled to no weight. Complainant did not claim to be a cybersecurity expert. Tr. at 107. She identified no relevant work experience, education, or training. She presented no other witnesses to support her privacy claims. Nor did she identify any instance in which Duquesne Light's cybersecurity system was hacked.

Complainant's cybersecurity/privacy concerns are based primarily on two flawed premises. The first is that Duquesne Light's smart meter will collect consumption data about specific, individual devices inside the home—which simply is not true and is completely unsupported in the record. As noted in Section II(D) above, Duquesne Light collects only aggregate household information, not data about specific appliances or devices Complainant uses. Tr. at 262-63. The Commission has repeatedly ruled that it is not improper for a utility to gather aggregate household consumption data. Bervinchak, 2018 WL at *13 (rejecting claim that utility violated complainant's privacy by collecting data about the total amount of electricity used at the premises); Ottaviano, 2018 WL 937069 at *13-14 (same); Eckstein, 2018 WL at *8-9 (smart meter is not a "surveillance device" merely because it collects aggregate household data).

The second flawed premise in Complainant's argument is that Duquesne Light must ensure that her personal information can never be hacked. That is not what the law requires; instead, the Company must provide "adequate, efficient, safe, and reasonable service." Ottaviano, 2018 WL at *12-13 (customer not entitled to a guarantee that utility's devices, equipment, and facilities are safe); Macey v. West Penn Power Co., Docket No. C-2019-3012705, 2020 WL 2511678, at *7-8 (Pa. P.U.C. May 6, 2020) (Johnson, ALJ) (utility must render reasonable and reliable service but not perfect service).

Duquesne Light provides adequate, efficient, safe, and reasonable service by taking many steps to ensure that customer information is protected. Duquesne Light modeled its cybersecurity protections on NIST standards and performs ongoing evaluation and audits to ensure that its protections are up-to-date. Tr. at 260-62. Duquesne Light uses "authentication" to ensure that devices that are communicating with each other are permitted to do so. Tr. at 267-68. Further, messages from the collection engine to the smart meter (and vice versa) as well as "all hops along the path" in the Company's smart meter network are encrypted using AES 128, which has been endorsed by NIST, the Federal Information Processing Standards, and the National Security Agency. Tr. at 268-270, 281. In fact, all messages that Duquesne Light sends through its smart meter mesh network are encrypted throughout the entire network. Tr. at 270. And even if an unauthorized party somehow intercepted a communication on Duquesne Light's smart meter network, it would be "illegible" unless the recipient also possessed the required certificate or encryption key. Tr. at 270-71.

Duquesne Light uses many other tools beyond authentication and encryption to protect confidential information. These tools include security event monitoring, network

segmentation, multiple redundant firewalls, data access restriction, and complex passwords. Tr. at 271-76. The Commission has held that data protection measures such as firewalls, data encryption, digital signatures, authentication, and access controls are consistent with industry standards, including those set by NIST, and constitute a reasonable attempt to protect customers' privacy. Bervinchak, 2018 WL 4185438 at *13 (utility took reasonable steps to protect data from public disclosure by using firewalls, encryptions, digital signatures, authentication, and access controls); Zimmerman, 2018 WL at *13 (same); Ottaviano, 2018 WL at *13-14 (utility took reasonable steps to protect data by using encryption method that was positively reviewed by federal government).

V. CONCLUSION

Although describing the extensive precautions that Duquesne Light and its vendors have taken to ensure that the Company's smart meter program is safe, reasonable, and reliable does not make for a short brief, the length of this brief should not belie the simplicity of the case before the Commission. This case breaks down into three issues.

First, Duquesne Light is not violating the Code, a Commission Order, or its Tariff by attempting to install a smart meter at the Service Address. In fact, the Code, the Commission's Order, and Duquesne Light's Commission-approved Tariff all affirmatively require that the Company install a smart meter at Complainant's residence. The Commission has repeatedly held that customers cannot opt-out of receiving a smart meter, which is precisely what Complainant seeks to do here. There is nothing unique about this case that warrants a different result from the Commission's prior decisions. Accordingly, the Commission must dismiss this case under the principle of *stare decisis*.

Second, overwhelming evidence established that every aspect of Duquesne Light's smart meter program that has been challenged by Complainant is adequate, reliable, safe, and reasonable. The Company proved that its smart meters easily meet the RF emission standards set by the FCC, IEEE, and ICNIRP. The amount of RF from Duquesne Light's smart meter is a tiny fraction of Complainant's overall RF exposure. From a safety standpoint, Duquesne Light's smart meter passed extensive flammability testing by Itron and UL and meets the ANSI testing standards. Moreover, this make and model has never caused a fire, either in Duquesne Light's service territory or anywhere else.

Finally, Duquesne Light proved that it does not collect information about how often customers use individual appliances and that it takes numerous cybersecurity measures to protect customer information.

Complainant submitted no evidence establishing that Duquesne Light's smart meter will cause adverse health effects, threaten her safety, or violate her privacy. Instead, she merely offered her own opinion about these issues, which is not enough to meet her burden of proof. Given that Complainant has refused Duquesne Light's efforts to install a smart meter at her premises, Duquesne Light may -- under its own Tariff as well as Commission regulations -- terminate her service.

Accordingly, Duquesne Light respectfully requests that the Formal Complaint be dismissed. Duquesne Light further requests that the Presiding ALJ enter an order stating (i) Duquesne Light must install a smart meter at the Service Address, and (ii) if Complainant continues to prevent the Company from installing a smart meter at the Service Address, Duquesne Light can terminate Complainant's electric service.

Respectfully submitted,

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PROPOSED FINDINGS OF FACT

Background

1. Complainant Miranda Grace Edwards ("Complainant") resides at 3835 Acorn Street, Pittsburgh, PA 15207 ("Service Address"). Tr. at 74.

2. Respondent Duquesne Light Company ("Duquesne Light" or "the Company") is an electric distribution company with more than 100,000 customers in its service territory. Tr. at 404.

3. On June 14, 2018, Complainant filed a Formal Complaint against Duquesne Light with the Pennsylvania Public Utility Commission ("Commission"). She objected to Duquesne Light's attempt to install a smart meter at the Service Address and raised health, safety, and privacy concerns. Tr. at 116.

4. On July 5, 2018, Duquesne Light filed an Answer and New Matter, which denied the allegations in the Formal Complaint and stated that Act 129 of 2008 ("Act 129") required the Company to install a smart meter at the Service Address.

5. On March 4, 2019, Complainant filed an Amended Complaint with the Commission. The Amended Complaint raised the same basic allegations as the Formal Complaint.

6. On March 25, 2019, Duquesne Light filed an Answer and New Matter to the Amended Complaint, which denied the allegations in the Amended Complaint and reiterated that Act 129 required the Company to install a smart meter at the Service Address.

7. On February 27, 2020, the parties participated in a telephonic hearing before the Presiding ALJ, which lasted approximately 11 hours. Tr. at 4, 459.

The Witnesses at the Hearing

8. At the hearing, Complainant testified as a lay witness on her own behalf. Tr. at 66.

9. Complainant called no other witnesses at the hearing.

10. Complainant is not a medical professional, electrical engineer, certified fire investigator, or certified electrician and did not claim to be testifying as an expert witness on any topic. Tr. at 107, 155.

11. Complainant presented no medical records or testimony at the hearing. Tr. at 147-48.

12. Complainant did not claim to suffer from a specific health condition that makes her sensitive to radiofrequency ("RF") and did not allege that she is a member of a group that is allegedly vulnerable to harm from RF. Tr. at 147-48.

13. Duquesne Light presented the testimony of two expert witnesses at the hearing: Dr. Benjamin Cotts and Dr. Gabor Mezei. Tr. at 297, 358.

14. Dr. Cotts received a Bachelor of Science from the University of Portland, a Master of Science in Electrical Engineering from Stanford University, and Ph.D. in Electrical Engineering from Stanford University. Tr. at 298; DLC Ex. H-2. He also is a Registered Professional Engineer, which is the legal licensure required for performing engineering work and includes a strict code of ethics. Tr. at 298. He currently works as a Senior Managing Engineer for Exponent, Inc. Tr. at 298-99.

15. Dr. Cotts possesses specific work experience relating to electromagnetic frequency and radio frequency; these topics are his specialty and the subject upon which he performed his doctoral and post-graduate work. Tr. at 299.

16. Dr. Cotts has been offered and accepted as an expert witness in other proceedings relating to electromagnetic frequency and radio frequency, including testimony before the Connecticut Siting Council, the Public Service Commission of Kentucky, the Alberta Utility Commission, the Superior Court of Quebec, and the Supreme Court of British Columbia. Tr. at 298.

17. Duquesne Light offered Dr. Cotts as an expert witness in the field of electrical engineering, physics, and electromagnetics, with an emphasis on the field effects of electromagnetic frequency and radio frequency. Tr. at 300.

18. The Presiding ALJ accepted Dr. Cotts as an expert witness in the fields for which he was offered by Duquesne Light. Tr. at 301.

19. After being accepted as an expert witness, Dr. Cotts presented expert testimony and opinion relating to the electromagnetic and radiofrequency exposure concerns raised by Complainant. Tr. at 301-55.

20. Duquesne Light also offered Dr. Gabor Mezei as an expert witness at the hearing. Tr. at 363.

21. Dr. Mezei received a Medical Degree from the Semmelweis University of Medicine and a Ph.D. in Epidemiology from the University of California, Los Angeles. Tr. at 361; DLC Ex. H-1. He currently works as a Senior Managing Scientist at Exponent, Inc. Tr. at 359.

22. Dr. Mezei has been offered and accepted as an expert witness in six to twelve other proceedings involving electromagnetic frequency and radio frequency before public utility commissions in the United States, Canada, and Ireland. Tr. at 361-62.

23. Dr. Mezei has consulted with several agencies or groups on the potential health effects of electromagnetic frequency and radio frequency, such as the California Public Utility Commission and the California Council on Science and Technology. Tr. at 363.

24. Dr. Mezei has written approximately 60 peer-reviewed publications in the scientific literature, many of which deal with the potential health effects of electromagnetic frequency and radiofrequency. Tr. at 362. He has also performed peer review of articles and studies written by others relating to these topics. Id.

25. Duquesne Light offered Dr. Mezei as an expert witness in the field of epidemiology, health sciences, and research, specifically with respect to electromagnetic fields and radio frequency fields. Tr. at 363. Complainant did not object to Dr. Mezei's expert qualifications. Id.

26. The Presiding ALJ accepted Dr. Mezei as an expert witness in the fields for which he was offered by Duquesne Light. Tr. at 363-64.

27. After being accepted as an expert witness, Dr. Mezei presented expert testimony and opinion relating to Complainant's allegations about the adverse health effects that she believed would result from the installation of a smart meter by Duquesne Light at the Service Address. Tr. at 364-402.

28. Duquesne Light also presented testimony from five fact witnesses at the hearing: Michael Belanger, Steve Wright, Michael Tallent, Michael Secchiutti, and Roxanne Morris. Tr. at 171-72, 220, 258-59, 403, 436.

29. Michael Belanger is employed by Itron, Inc. as a Senior Project Line Manager. Tr. at 171-72. He received an electrical engineering degree from the University

of Michigan and has written several white papers relating to smart meters and radio frequency matters. Id. at 172-73. Mr. Belanger has personal knowledge of the design, operation, and communication technology associated with the Itron smart meters being deployed by Duquesne Light, and he has personal knowledge of the testing and compliance standards set forth by the Federal Communications Commission ("FCC") for this type of meter. Tr. at 174.

30. Mr. Belanger testified about the design, manufacture, capabilities, and operation of the smart meters being deployed by Duquesne Light in its service territory, as well as the compliance of these smart meters with various codes and standards. Tr. at 174-198.

31. Steve Wright is employed by Itron, Inc. as a Senior Project Manager. Mr. Wright has worked in the electric metering industry for 32 years, including 23 years as an employee of Itron. Tr. at 220-21. He has personal knowledge of type of smart meter that Duquesne Light is deploying throughout its service territory. Id. at 221-22. Mr. Wright performed job duties for Itron relating to the construction, design, and operation of that meter. Id. at 222.

32. Mr. Wright presented testimony relating to the design, manufacture, capabilities, and operation of the smart meters being deployed by Duquesne Light in its service territory, as well as the compliance of these smart meters with various codes and standards. Tr. at 220-54.

33. Michael Tallent is Duquesne Light's Chief Information Security Officer. Tr. at 256. He received a Bachelor of Science in Aerospace Technology and a Bachelor of

Arts in Computer Information Systems, as well as a Masters of Business Administration. Id. at 261.

34. Mr. Tallent has worked in the cybersecurity field for 15 years, including nearly four years as Duquesne Light's Chief Information Security Officer. Tr. at 259. He is a certified information security professional and was a contributor to the National Institute of Standards and Technology ("NIST") guidelines for smart grid security. Id. at 260-61. At the hearing, Mr. Tallent testified about the cybersecurity and privacy protections and other encryption features that Duquesne Light has implemented as part of its information systems. Id. at 258-96.

35. Michael Secchiutti has been employed by Duquesne Light for 20 years and currently serves as the Company's Manager of Smart Meter Operations. Tr. at 403. He has a Bachelor of Science in Electrical Engineering Technology. Id. at 403-04. Mr. Secchiutti manages Duquesne Light's smart meter operations center, which monitors the health of the Company's Advanced Metering Infrastructure ("AMI") network. Id. at 404. He also manages the Company's Meter Data Management group, which handles meter data that is being prepared for billing. Id. Mr. Secchiutti testified about Duquesne Light's smart meter implementation plan, operational features of Duquesne Light smart meters, the nature of information collected by Duquesne Light's smart meters, the network within which Duquesne Light's smart meters operate, and Duquesne Light's compliance with applicable regulations, standards, and best practices. Id. at 403-35.

36. Roxanne Morris is Duquesne Light's Supervisor of Regulatory Consumer Relations. Tr. at 436. She has been employed by Duquesne Light for over 30 years. Id. As part of her current job duties, she regularly reviews records in Duquesne Light's

Customer Care and Billing System. Id. At the hearing, Ms. Morris provided testimony as a records custodian about basic account information relating to the Service Address and authenticated various Company records and tariff provisions. Id. at 435-52.

The Current Meter at the Service Address

37. The electric meter that is currently installed at the Service Address has a meter number of G90231606 and was installed at the Service Address on December 14, 1996 ("Current Meter"). Tr. at 438-39; DLC Ex. Q.

38. The Current Meter is an Automatic Meter Reading ("AMR") meter that operated on Duquesne Light's AMR fixed network. Tr. at 417.

39. Duquesne Light is replacing its AMR meters with smart meters throughout its service territory, and the Company's AMR fixed network is no longer operational. Tr. at 418.

40. When Duquesne Light's AMR fixed network was still operational, the Company would obtain meter readings from the Current Meter via radiofrequency ("RF"). Tr. at 417.

Duquesne Light's Smart Meter Plan

41. Act 129 lists the required Smart Meter functionalities, which was supplemented by Commission Order. 66 Pa. C.S.A. § 2807; Tr. at 405.

42. Duquesne Light has more than 100,000 customers and falls within the scope of Act 129. Tr. at 404.

43. On June 29, 2012, the Company filed a Smart Meter Plan with the Commission at Docket No. M-2009-2123948, which the Commission approved. Tr. at 404-05; DLC Ex. B-1.

44. Duquesne Light's Smart Meter Plan identifies Itron, Inc. as the Company's smart meter vendor and network provider. Tr. at 405; DLC Ex. B-1.

45. The smart meter that Duquesne Light plans to install at the Service Address has all the functionalities required by Act 129. Tr. at 406-07.

Duquesne Light's Tariff

46. Rule 9B of Duquesne Light's Tariff has been approved by the Commission and states that smart meters conforming to Company standards must be installed at each metered service premises pursuant to Act 129 and Duquesne Light's Smart Meter Plan and that customers cannot refuse the installation of a smart meter for any reason. DLC Ex. D-2.

47. Rule 9B of Duquesne Light's Tariff states that meter relocation is the sole remedy for customers who do not wish to receive a smart meter from Duquesne Light and that customers are responsible for paying the costs associated with meter relocation. DLC Ex. D-2; Tr. at 418-20.

48. Duquesne Light made meter relocation available to Complainant. Tr. at 421.

49. Rule 22 of the Company's Tariff authorizes Company representatives to access the Company's equipment for several enumerated reasons, including to read Company meters and remove Company property.

50. Rule 33 of the Company's Tariff states that the Company can terminate a customer's service if the customer prevents Duquesne Light from accessing its equipment.

Duquesne Light's AMI Network

51. Duquesne Light's AMI network uses RF to transmit information on a two-way communication system. Tr. at 174, 177, 306.

52. Duquesne Light's smart meters send communications through the Company's "mesh network" to a collection point, which was previously a cell relay but is now a router. Tr. at 175.

53. At the collection point, a cellular modem communicates back to the utility's head-end system. Tr. at 175.

54. RF transmissions also travel in the opposite direction (from utility to meter) because the network allows for two-way communications, as required by Act 129. Tr. at 174, 177; 66 Pa. C.S.A. § 2807.

Duquesne Light's Smart Meter

55. Duquesne Light is deploying Itron's OpenWay Centron smart meter throughout its service territory; it has an FCC identification number of SK9AMI7. Tr. at 173, 221; DLC Ex. G-7.

56. Duquesne Light's smart meter has an expected useful life of 20 years, which is the same as the Company's electromechanical or analog meters. Tr. at 211, 222.

57. The Company's smart meter contains two radios: the Local Area Network ("LAN") radio and the Zigbee radio. Tr. at 175, 306, 407.

58. The LAN radio transmits at 900 megahertz and communicates with nearby smart meters to form a mesh network. Tr. at 175.

59. Each communication from a LAN radio lasts just 20-150 milliseconds and occurs at a power of 0.69 watts. Tr. at 180, 315-16.

60. The LAN radio provides the Company with consumption data, which is the amount of electricity consumed by the residence. Tr. at 409-10.

61. Duquesne Light currently takes two consumption readings per day. Tr. at 416.

62. The consumption readings measure the aggregate the consumption in the home. Tr. at 262-63.

63. Duquesne Light does not collect consumption data on a granular, appliance-by-appliance basis, nor does the Company send any personally-identifiable information in messages transmitted through its mesh network. Tr. at 262-63.

64. The LAN radio communicates other information that Duquesne Light uses to provide safe and reliable service to its customers, including 60-minute interval data voltage information, on-demand reads, tamper events, outages, and other system events that notify the Company of problems relating to the meter. Tr. at 179-80, 409-10, 416.

65. The LAN radio also communicates with nearby meters to help maintain a functioning, synchronized mesh network. Tr. at 179-80.

66. The ZigBee radio transmits at 2.4 gigahertz and, when enabled by the customer, will communicate consumption data from the meter to certain types of devices within the service address, such as an in-home display unit. Tr. at 175, 407.

67. The Zigbee radio is not automatically paired with any devices inside the customer's home when Duquesne Light installs a smart meter at a residence. Tr. at 407. It only pairs with a device if the customer requests it from Duquesne Light. Tr. at 177, 407-08.

68. Complainant can decide whether to connect any device inside her home to the Zigbee radio. Tr. at 408.

Health Standards for RF Emissions

69. The Federal Communications Commission ("FCC") established safe levels, or maximum permissible exposure limits ("MPE"), for RF transmissions in the United States. Tr. at 187-88, 322.

70. To set its MPE limits, the FCC relied on input from several health agencies such as the National Council for Radiation Protection, the Institute of Electrical and Electronics Engineers ("IEEE"), the National Institute for Occupational Safety and Health, the Occupational Safety and Health Administration, the Environmental Protection Agency, and the Food and Drug Administration ("FDA"). Tr. at 370-71.

71. The FCC considered both the thermal and non-thermal effects of smart meters in setting its MPE limits. Tr. at 372.

72. The FCC's standards are based on a comprehensive review of the entire available body of scientific literature, which includes studies of potentially vulnerable populations such as children and the elderly. Tr. at 371.

73. The FCC's standards also incorporate a "safety factor" to account for the potential variability and uncertainty in the scientific literature and potentially vulnerable populations. Tr. at 324, 371-72.

74. After a six-year review, the FCC concluded in 2019 that its MPE limits are still valid and protective of human health. Tr. at 373.

75. The FCC's regulations establish that the MPE to RF fields emitted by the LAN radio is 0.61 milliwatts per square centimeter. Tr. at 187-88, 325; DLC Ex. H-6.

76. The MPE for the Zigbee radio is 1.0 watts per square centimeter. Tr. at 325-26; DLC Ex. H-6.

77. The IEEE and the International Commission on Non-Ionizing Radiation Protection ("ICNIRP") also developed exposure limits for electromagnetic fields based on lengthy and comprehensive assessments of the scientific literature. DLC Ex. H-2.

78. ICNIRP is an independent, non-governmental scientific organization that sets guidelines to protect the public from potential health effects relating to EMF and RF. Tr. at 376. It is recognized by the World Health Organization ("WHO") as an organization that provides guidance on standards and guidance development relating to non-ionizing radiation. Id.

79. The RF exposure limits established by the FCC, IEEE, and ICNIRP are shown below:

Table 3. Exposure limits specified by the FCC, IEEE, and ICNIRP

	Power Density Limit at 900 MHz		Power Density Limit at 2.4 GHz (W/m^2)		
Agency	**(W/m^2)**	**(mW/cm^2)**	**(W/m^2)**	**(mW/cm^2)**	**SAR Limit (W/kg)**
FCC (CFR §1.1310 and §2.1093)	6	0.6	10	1.0	0.08 (Whole body) 1.6 (over any 1 gram of tissue)
ICNIRP (1998)	4.5	0.45	10	1.0	0.08 (Whole body) 2 (over any 10 grams of tissue)
IEEE, (C95.1, 2019)	4.5	0.45	10	1.0	0.08 (Whole body) 2 (over any 10 grams of tissue)

Note: mW/cm^2 = milliwatts per square centimeter; W/m^2 = watts per square centimeter and 1 mW/cm^2 = 10 W/m2.

See DLC Ex. H-2 and H-6.

Duquesne Light's Compliance With RF Health Standards

80. Both radios in the Company's smart meters comply with the exposure limits set by the FCC, IEEE, and ICNIRP. Tr. at 326.

81. The FCC issued a "Grant of Equipment Authorization" in 2011, which is the agency's official verification that the radios in the Company's smart meter meet the FCC's requirements. DLC Ex. G-7; Tr. at 191-92.

82. The FCC's Grant of Equipment Authorization remains in effect today. Tr. at 192.

83. The amount of RF emitted from the radios in the Company's smart meters is just a tiny fraction of the FCC's limits. Tr. at 188-89, 302-03; DLC Ex. H-2 and H-6.

Heath Effects of RF Emissions Below Accepted Standards

84. Many organizations have performed thorough "weight of the evidence" reviews to determine the potential health effects of RF fields. Tr. at 368-69, 374; DLC Ex. H-1.

85. Comprehensive weight of the evidence reviews evaluating the potential health effects of RF were conducted by ICNIRP in 2009, the Health Protection Agency of the United Kingdom in 2012, the International Agency for Research on Cancer ("IARC") in 2013, and the European Union Scientific Committee on Non-Emerging and Newly-Identified Health Risks ("SCENIHR") in 2015. Tr. at 375.

86. All of these studies concluded that the scientific evidence does not establish a cause-and-effect relationship between RF exposure below currently existing, scientifically-based exposure guidelines and any adverse health effects, including cancer and non-cancer outcomes. Tr. at 377; DLC Ex. H-1.

87. The WHO and the FDA have also concluded that the scientific evidence does not confirm the existence of any adverse health effects for exposure levels that are below the exposure guidelines. Tr. at 378; DLC Ex. H-1.

88. The scientific and medical evidence does not establish that RF exposure below accepted guidelines causes any adverse health effects. Tr. at 364-65.

89. Several governmental agencies in the United States have analyzed whether RF emitted by smart meters causes adverse health effects, including: the Maine Center for Disease Control; the California Council on Science and Technology; the Colorado Department of Public Health and Environment; the Michigan Public Service Commission; the Oregon Health Authority; the Public Utility Commission of Texas; the Arizona Department of Health Services; the Vermont Department of Health; the Vermont Public Service Department; and the North Carolina Public Health Division. Tr. at 378-79.

90. None of these organizations or agencies have concluded that RF exposure associated with smart meters will cause any adverse health effects. Tr. at 379.

Duty Cycle of Duquesne Light's Smart Meters

91. The estimated time that a Duquesne Light smart meter would transmit energy during a 24-hour period – commonly called the "duty cycle" – was assessed through a study that analyzed the deployment of roughly 13,000 OpenWay smart meters, which are the ones being deployed by Duquesne Light. Tr. at 181, 183-84, 316.

92. The study found that the average duty cycle of the LAN radio to be just 0.21%, which means that the radio communicates information by RF for just 0.21 percent of the day; this translates to slightly less than three minutes per day on average. Tr. at 184-85, 318; DLC Ex. F-8, H-2, H-6.

93. The expected maximum duty cycle for the LAN radio is roughly 8 percent, meaning that the meter would transmit for 115.2 minutes in a 24-hour period. Tr. at 201-02, 214, 318; DLC Ex. H-6.

94. The estimated minimum duty cycle for the Company's smart meters is about 0.03 minutes per day, which is a fraction of a second. Tr. at 318; DLC Ex. H-6.

95. For a Zigbee radio that is not paired with another device inside the customer's home, the duty cycle is roughly 0.01%, which is slightly less than 10 seconds per day. Tr. at 319; DLC Ex. H-6.

96. A smart meter's duty cycle is very low compared to other RF-emitting devices such as television and radio broadcasting stations, which have a 100 percent duty cycle. Tr. at 318.

Propagation and Attenuation

97. Because smart meters communicate with other nearby meters, their RF communications are purposefully directed through the front of the meter and away from the customer's home; this is known as propagation. Tr. at 178, 337.

98. RF emitted from the back of a smart meter is roughly 10 times lower than the amount transmitted through the front. Tr. at 178, 337.

99. The smart meter also sits inside a metal box, which further limits the RF directed towards the home. Tr. at 179.

100. The home's construction materials, such as the exterior walls, further deflect any RF directed towards the home. Tr. at 321.

101. The principle of attenuation establishes that RF exposure rapidly decreases as the distance from a smart meter increases. Tr. at 320.

102. Because the smart meter sends out a finite amount of power, as the distance from the smart meter increases, the total power becomes distributed over a larger area and loses force. Tr. at 320. For example, a person standing 10 yards from a smart meter receives about 100 times less RF exposure than someone standing one yard away. Tr. at 320-21.

Complainant's Expected RF Exposure at the Service Address

103. Complainant would not suffer any adverse health effects as a result of being exposed to RF from a smart meter. Tr. at 365-66.

104. A person standing inside the Service Address and 10 feet from the smart meter would be exposed to approximately 0.0000007% of the FCC's RF limit, assuming that the LAN radio was transmitting at an average duty cycle. Tr. at 338; DLC Ex. H-6.

105. A person 10 feet away from a smart meter outside the home likely would be exposed to just 0.0000090% of the FCC'S limit (again assuming an average duty cycle). Tr. at 338; DLC Ex. H-6.

106. Even if Complainant stood outside her home and was only eight inches away from the smart meter and it transmitted as much as possible (*i.e.*, at the maximum duty cycle), she still would only be exposed to less than 8 percent of the FCC's exposure limits. DLC Ex. H-2 and H-6.

107. Complainant already receives much higher levels of RF from many natural and man-made sources, including from other human beings and the Earth. DLC Ex. H-2 and H-6.

108. Complainant presented no medical evidence, witnesses, or records at the hearing demonstrating that RF emitted from a smart meter will harm her. Tr. at 147-48.

109. Complainant does not claim to suffer from a specific health condition that makes her sensitive to RF or that she is a member of a group that is allegedly vulnerable to harm from RF. Tr. at 147-48.

Safety Standards

110. The American National Standards Institute ("ANSI") establishes safety and performance criteria for electric revenue meters. Tr. at 224, 228-29.

111. ANSI C12.1 and C12.20 set forth the required safety and performance criteria for electric revenue meters and describe acceptable in-service performance levels for those meters. Tr. at 228-29.

112. Itron tested the Company's smart meter for compliance with ANSI C12.1 and ANSI C12.20. Tr. at 229. Trained employees of Itron's qualification lab ran a battery of tests to verify compliance, including but not limited to No Load and Starting Load tests; Load Performance and Stability tests; tests evaluating the Effect of High Voltage Line Surges; Temperature Extremes testing; and Voltage Interruption tests. Tr. at 232-33; DLC Ex. G-1.

113. Duquesne Light's smart meter passed all of the tests that Itron conducted as part of ANSI C12.1 and ANSI C12.20 testing. Tr. at 233.

114. Itron also submitted the Company's smart meter to Underwriters Laboratories ("UL") for testing under UL 2735 (Standards for Safety for Electric Utility Meters). Tr. at 225-26.

115. UL 2735 is a certification standard that applies to electric utility meters, including smart meters. Tr. at 225-26, 252.

116. If a meter is UL-certified, it means that it has undergone extensive testing by UL and meets UL's certification standards. Tr. at 227; DLC Ex. G-3.

117. UL performed several tests on the Company's smart meter before certifying that it was safe. Tr. at 228.

118. In particular, UL conducted a "single vault condition test," ANSI C12.1 testing, mechanical testing, and flammability testing. Tr. at 228.

119. UL certified that Duquesne Light's smart meter complies with UL 2735, which validates that it is safe. Tr. at 225, 227; DLC Ex. G-3.

120. Itron also performed its own flammability tests. Tr. at 234.

121. Itron validates flammability to a standard called IEC 62052-11. Tr. at 234.

122. To ensure that its smart meters meet this standard, Itron tests to IEC 695-2-11, which is a scalding hot-water based test. Tr. at 234.

123. To perform this hot-water based test, Itron injects a glow wire heated to 1,760 degrees Fahrenheit into the smart meter's base for 30 seconds. Tr. at 234.

124. Itron monitors the test to ensure that the meter emits no flames. Tr. at 234.

125. Itron performs similar testing on the smart meter's outer cover. Tr. at 234-35.

126. Duquesne Light's smart meter passed Itron's flammability tests. Tr. at 234-35.

127. Duquesne Light has installed roughly 620,000 smart meters throughout its service territory. Tr. at 408.

128. The Company's smart meters have not caused any fires. Tr. at 235, 409.

129. More broadly, the type of Itron smart meter being deployed by Duquesne Light has never caused a fire since it was deployed by Itron. Tr. at 235.

130. Complainant never personally investigated any fires allegedly caused by a smart meter. Tr. at 150, 152.

131. Complainant did not claim to be a fire or flammability expert. Tr. at 107.

132. Complainant could not identify any instance in which Duquesne Light's smart meter caused a fire. Tr. at 150, 152.

Data Collected by Duquesne Light's Smart Meter

133. Duquesne Light's smart meters gather gross consumption information, which is used for monthly billing. Tr. at 409.

134. Duquesne Light does not gather information about how often customers use specific appliances in their homes. Tr. at 262-63.

135. The usage information passing through the Company's smart meter network is aggregate information for a household; it does not identify individual appliance use within the customer's home. Tr. at 262-63.

136. There is no personally-identifiable information such as Social Security numbers, customer names or address, or bank account information in the consumption data or other messages that Duquesne Light sends through its smart meter network. Tr. at 263.

137. Complainant presented no evidence establishing that the Company gathers information about how often customers use their appliances in their homes.

Cybersecurity Measures

138. Duquesne Light deploys numerous cybersecurity measures to protect the information collected by its smart meters. Tr. at 276.

139. Duquesne Light modeled its cybersecurity protections on the framework established by the National Institute of Standards and Technology ("NIST"), which is part of the United States Department of Commerce. Tr. at 260-62.

140. Duquesne Light performs ongoing evaluations (including self-evaluations) and third-party audits to ensure that its cybersecurity protections continue to meet NIST's standards. Tr. at 262.

141. Duquesne Light uses "authentication" to ensure that devices in the mesh network that are communicating with each other are permitted to do so. Tr. at 267-68.

142. All communications sent within Duquesne Light's mesh network are encrypted using the "Advanced Encryption Standard," commonly called as AES 128. Tr. at 268-70, 281.

143. AES 128 has been certified and endorsed by the Federal Information Processing Standards, NIST, and the National Security Agency. Tr. at 270.

144. Due to these encryption protocols, if an unauthorized recipient intercepted a communication in Duquesne Light's smart meter network, the information would be illegible unless the recipient possessed the required certificate and encryption key. Tr. at 270-71.

145. Duquesne Light also implements security event monitoring to protect its mesh network. Tr. at 271.

146. Security event monitoring correlates and monitors events from multiple devices in the mesh network such as firewalls, servers, meters, signing and decryption devices, and authentication or authorization events. Tr. at 282-83.

147. Security event monitoring allows the Company to identify anomalous events in its network to determine if they are authorized or unauthorized. Tr. at 271.

148. Duquesne Light also uses network segmentation, which splits the Company's smart meter network into sub-networks. Tr. at 272.

149. Network segmentation allows Duquesne Light to respond to a security incident before it becomes a widespread problem. Tr. at 272-73.

150. The Company uses several protections within its data collection engine itself, such as multiple redundant firewalls, identity access management controls, security event monitoring, security patching, and vulnerability management. Tr. at 273.

151. A firewall only allows certain traffic from certain sources to travel to a given destination and thus limits what can enter a secure environment. Tr. at 273.

152. Duquesne Light sets protocols to control what traffic can enter the Company's firewalls. Tr. at 274.

153. The Company's data collection engines run signature-based antivirus that looks for known malicious software, as well as heuristic-based anti-malware protection. Tr. at 274.

154. If these safeguards detect any traffic that violates the Company's protocols, the traffic will be flagged as an anomalous event. Tr. at 275.

155. The signature-based anti-virus protection and the heuristic-based anti-malware protection operate independently, so if one program misses an anomalous event, the other program should pick it up. Tr. at 274-75.

156. Duquesne Light also restricts access to data that is gathered by its smart meters and stored in the Company's data collection engine, meaning there are strict limits on who can view what information and when. Tr. at 275.

157. Duquesne Light limits access to information to those employees who need to obtain the data to perform their jobs. Tr. at 275-76.

158. Duquesne Light further controls access to information by requiring complex passwords that frequently change. Tr. 276.

159. Duquesne Light does not sell customer information to third-parties with whom it does not have a business relationship. Tr. at 413-14; DLC Ex. I-1.

160. Duquesne Light's smart meter network has never been hacked. Tr. at 260-62.

161. Complainant offered no evidence at the hearing contradicting or calling into question any of Duquesne Light's cybersecurity measures.

162. Complainant offered no witnesses or evidence suggesting that Duquesne Light's information security practices are unreasonable.

163. Complainant admitted that she has never seen any documents from Duquesne Light or Itron establishing that the Company's smart meters can differentiate between different appliances when transmitting consumption data to Duquesne Light. Tr. at 155-56.

164. Complainant could not identify any specific documents to support her claim that smart meters can detect which specific appliances are being used inside her home. Tr. at 153-54.

Duquesne Light's Attempt to Install a Smart Meter at the Service Address

165. Over a two-month period beginning in early April 2018, Duquesne sent at least three letters and made two phone to Complainant at the Service Address. Tr. at 79-80, 88, 96, 443-44, 446-47; DLC Ex. M-1, M-2, N, O.

166. These phone calls and letters informed Complainant, in sum, that the Company was required to install a smart meter at the Service Address and provided information about smart meters and the exchange process. Tr. at 79-80, 88, 96, 443-44, 446-47; DLC Ex. M-1, M-2, N, O.

167. A Duquesne Light contractor visited the Service Address two different times during this two-month period to exchange the meter. Tr. at 443, 448; DLC Ex. M-1.

168. Complainant blocked both attempted exchanges. Tr. at 81-82, 443, 448; DLC Ex. M-1.

169. The Company could not install a smart meter during those visits and has not tried to install a smart meter at the Service Address since Complainant filed the Formal Complaint. Tr. at 75-77, 448; DLC Ex. M-1.

170. The Current Meter is presently installed at the Service Address. Tr. at 417, 439.

PROPOSED CONCLUSIONS OF LAW

1. The Commission has jurisdiction over the parties and the subject matter in this proceeding. 66 Pa. C.S. § 701.

2. Under Section 332(a) of the Pennsylvania Public Utility Code, the proponent of a rule or order has the burden of proof. 66 Pa. C.S. § 332(a). It is well-established that "[a] litigant's burden of proof before administrative tribunals . . . is satisfied by establishing a preponderance of evidence which is substantial and legally credible." Samuel J. Lansberry, Inc. v. Pa. Pub. Util. Comm'n, 578 A.2d 600, 602 (Pa. Cmwlth. 1990).

3. The preponderance of evidence standard requires proof by a greater weight of the evidence. Commonwealth v. Williams, 732 A.2d 1167, 1187 (Pa. 1999). This standard is satisfied by presenting evidence that makes the existence of a contested fact more likely than its nonexistence. Brown v. Commonwealth, 940 A.2d 610, 614 n.14 (Pa. Cmwlth. 2008).

4. In smart meter-related matters, the Commission has held that "[t]he Complainant will have the burden of proof during the proceeding to demonstrate, by a preponderance of the evidence, that [the utility] is responsible or accountable for the problem described in the Complaint." Kreider v. PECO Energy Co., Docket No. P-2015-2495064, 2015 WL 5256653, at *11 (Pa. P.U.C. Sept. 3, 2015).

5. When presented with a challenge to a smart meter installation, the Commission has pronounced that "[t]he ALJ's role . . . will be to determine based on the record in this particular case, whether there is sufficient evidence to support a finding that Complainant was adversely affected by the smart meter or whether [the utility's] use of

a smart meter will constitute unsafe or unreasonable service in violation of Section 1501 under the circumstances in this case." Kreider v. PECO Energy Co., Docket No. P-2015-2495064, 2016 WL 406549, at *14 (Pa. P.U.C. Jan. 28, 2016).

6. To satisfy the burden of proof, a complainant must demonstrate that the utility violated the Public Utility Code or a regulation or order of the Commission. 66 Pa. C.S. § 701. This must be shown by a preponderance of the evidence. Patterson v. Bell Telephone Co. of Pa., Docket No. F-8966524, 1990 WL 10702674 (Pa. P.U.C. 1990).

7. Upon the presentation by a complainant of evidence sufficient to initially satisfy the burden of proof, the burden of going forward with the evidence, sometimes called the burden of persuasion, to rebut the evidence of the complainant shifts to the respondent. If the evidence presented by the respondent is of co-equal weight, the complainant has not satisfied the burden of proof. The complainant now has to provide some additional evidence to rebut the evidence of the respondent. Burleson v. Pa. Pub. Util. Comm'n., 443 A.2d 1373, 1375 (Pa. Cmwlth. 1982), aff'd, 461 A.2d 1234 (Pa. 1983).

8. While the burden of persuasion may shift back and forth during a proceeding, the burden of proof never shifts. The burden of proof always remains on the party seeking affirmative relief from the Commission. Milkie v. Pa. Pub. Util. Comm'n, 768 A.2d 1217, 1220 (Pa. Cmwlth. 2001).

9. In order to prevail on a claim against an electric distribution company alleging that an AMI meter caused or will cause adverse health effects or harm to human health, the Complainant must demonstrate by a preponderance of the evidence that there is a "conclusive causal connection" between exposure to electromagnetic frequency and adverse human health effects; when the record evidence demonstrates a body of

inconclusive scientific research and studies as to the causal connection, the burden of proof is not satisfied. Branagh v. PECO Energy Co., No. C-2016-2576738, 2019 WL 6458306, at *7 (Pa. P.U.C. Nov. 14, 2019); Randall v. PECO Energy Co., Docket No. C-2016-2537666, 2019 WL 2250792, at *17 (Pa. P.U.C. May 9, 2019).

10. A public utility's Commission-approved tariff is *prima facie* reasonable, has the full force of law and is binding on the utility and the customer. Pa. Electric Co. v. Pa. Pub. Util. Comm'n, 663 A.2d 281 (Pa.Cmwlth. 1995); Respond Power, LLC v. Pa. Elec. Co. and Respond Power LLC v. West Penn Power Co., Docket Numbers C-2016-2576287 and C-2016-2576292 (Order Entered July 13, 2017).

11. Assertions, personal opinions, or perceptions do not constitute evidence. Pa. Bureau of Corrections v. City of Pittsburgh, 532 A.2d 12, 14 (Pa. 1987); Lamagna v. Pa. Elec. Co., Docket No. C-2017-2608014, 2018 WL 6124353, at *15 (Pa. P.U.C. Oct. 30, 2018) (Watson, ALJ); Zimmerman v. PPL Elec. Util. Corp., Docket No. C-2017-2615038, 2018 WL 4185439, at *9 (Pa. P.U.C. Aug. 16, 2018) (Barnes, ALJ).

12. A public utility is required to provide adequate, efficient, safe, and reasonable service. 66 Pa. C.S. §§ 102 and 1501.

13. Act 129 of 2008, 66 Pa.C.S. § 2806.1 *et seq*., required electric distribution companies to file smart meter technology procurement and installation plans with the Commission for approval. 66 Pa.C.S. § 2807(f).

14. Duquesne Light has more than 100,000 customers and is covered by Act 129.

15. No provision in the Public Utility Code or the Commission's Regulations or Orders allows a customer to "opt out" of receiving a smart meter. Hoffman-Lorah v. PPL

Elec. Util. Corp., Docket No. C-2018-2644957, 2019 WL 2325713, at *28 (Pa. P.U.C. May 23, 2019); Paul v. PECO Energy Co., Docket No. C-2015-2475355, 2018 WL 3093596, at *4-5 (Pa. P.U.C. June 14, 2018); Povacz v. PECO Energy Co., Docket No. C-2012-2317176, 2013 WL 392699, at *6 (Pa. P.U.C. Jan. 24, 2013).

16. Without additional legislation from the General Assembly, the Commission cannot prohibit an electric distribution company that is covered by Act 129 from installing a smart meter at a service address, even if a customer does not want one. Schmukler v. PPL Elec. Utilities Corp., C-2017-2621285, 2018 WL 4185440, at *27 (Pa. P.U.C. Aug. 16, 2018) (Barnes, ALJ).

17. A utility may issue written notice of termination to a customer if a customer does not permit access to meters, service connections, or other property of the public utility for the purpose of replacement, maintenance, repair, or meter reading, including the installation of a smart meter. 66 Pa.C.S. § 1406(a)(4); 52 Pa.Code § 56.81(3).

18. Any testimony of a lay witness related to technical or specialized knowledge should be excluded and given no evidentiary weight. Gibson v. W.C.A.B., 861 A.2d 938, 947 (Pa. 2004).

19. The hearsay evidence presented by Complainant in this case that was properly objected to and excluded and may not support any findings of fact. Walker v. Unemployment Comp. Bd. of Review, 367 A.2d 366, 370 (Pa.Cmwlth. Ct. 1976).

20. Complainant failed to carry her burden of proof establishing that Duquesne Light violated the Public Utility Code or a regulation or order of the Commission in requiring installation of a smart meter at Complainant's property. 66 Pa.C.S. § 332.

21. Complainant failed, with respect to each one of her claims, to carry her burden of proof establishing that Duquesne Light provided unsafe or unreasonable service in violation of 66 Pa.C.S. § 1501.

PROPOSED ORDER

THEREFORE,

IT IS ORDERED:

1. That the Formal Complaint and Amended Formal Complaint filed by Miranda Grace Edwards against Duquesne Light Company at Docket No. C-2018-3002741 are dismissed in their entirety with prejudice.

2. That Docket No. C-2018-3002741 shall be marked closed.

3. That Duquesne Light shall be entitled to terminate the electric service of Miranda Grace Edwards at her residence located at 3835 Acorn Street, Pittsburgh, PA 15207 if she prevents Duquesne Light from installing a smart meter at her residence.

TADMS:5339586-1 014657-158498

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

MIRANDA EDWARDS,	:	
	:	
Complainant,	:	
	:	
vs.	:	No: C-2018-3002741
	:	
DUQUESNE LIGHT COMPANY,	:	
	:	
Respondent.	:	

CERTIFICATE OF SERVICE

I hereby certify that I have this day served a true copy of the foregoing Post-Hearing Brief and Proposed Findings of Fact, Conclusions of Law, and Order upon the participants listed below in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant):

Miranda Edwards
3835 Acorn Street
Pittsburgh, PA 15207

Administrative Law Judge Jeffrey Watson
Pennsylvania Public Utility Commission
Piatt Place - 301 Fifth Avenue
Suite 220
Pittsburgh, PA 15222
(via mail and e-mail at dpallas@pa.gov)

Dated this 2nd day of July, 2020

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