



17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
717-731-1970 Main
717-731-1985 Main Fax
www.postschell.com

Devin Ryan

dryan@postschell.com
717-612-6052 Direct
717-731-1981 Direct Fax
File #: 167945

September 13, 2019

VIA ELECTRONIC FILING


Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor North
P.O. Box 3265
Harrisburg, PA 17105-3265

Re: Kyle A. Toffey v. PPL Electric Utilities Corporation
Docket No. C-2019-3006931

Dear Secretary Chiavetta:

Enclosed for filing is the Motion of PPL Electric Utilities Corporation to Dismiss the Formal Complaint of Kyle A. Toffey in the above-referenced proceeding. Copies will be provided as indicated on the Certificate of Service.

Respectfully submitted,



Devin Ryan

DTR/jl
Enclosures

cc: Honorable Elizabeth Barnes
Certificate of Service

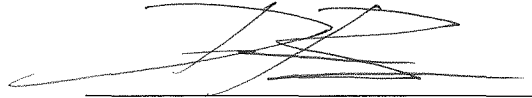
CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

VIA E-MAIL & REGULAR MAIL

Kyle A. Toffey
PO Box 99
Hamlin, PA 18437
E-mail: kyle.toffey@gmail.com

Date: September 13, 2019



Devin T. Ryan

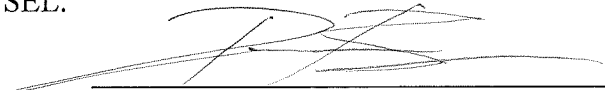
**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Kyle A. Toffey,	:	
	:	
Complainant,	:	
	:	
v.	:	Docket No. C-2019-3006931
	:	
PPL Electric Utilities Corporation,	:	
	:	
Respondent.	:	

NOTICE TO PLEAD

YOU ARE HEREBY ADVISED THAT, PURSUANT TO 52 PA. CODE § 5.371(b), YOU MAY FILE A REPLY TO THE ENCLOSED MOTION TO DISMISS WITHIN FIVE (5) DAYS AFTER THE DATE OF SERVICE. YOUR REPLY SHOULD BE FILED WITH THE SECRETARY OF THE PENNSYLVANIA PUBLIC UTILITY COMMISSION, P.O. BOX 3265, HARRISBURG, PA 17105-3265. A COPY OF YOUR REPLY SHOULD ALSO BE SERVED ON THE UNDERSIGNED COUNSEL.

Kimberly A. Klock (ID # 89716)
Michael J. Shafer (ID # 205681)
PPL Services Corporation
Two North Ninth Street
Allentown, PA 18101
Phone: 610-774-2599
Fax: 610-774-4102
E-mail: kklock@pplweb.com
mjshafer@pplweb.com



Devin T. Ryan (ID # 316602)
Garrett P. Lent (ID # 321566)
Post & Schell, P.C.
17 North Second Street, 12th Floor
Harrisburg, PA 17101-1601
Phone: 717-731-1970
Fax: 717-731-1985
E-mail: dryan@postschell.com
glent@postschell.com

Curtis S. Renner (ID # 326488)
Watson & Renner
1901 Pennsylvania Avenue, NW
Suite 1005 - ENS
Washington, DC 20006
Phone: 202-737-6302
E-mail: crenner@w-r.com

Date: September 13, 2019

Attorneys for PPL Electric Utilities Corporation

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Kyle A. Toffey,	:	
	:	
Complainant,	:	
	:	
v.	:	Docket No. C-2019-3006931
	:	
PPL Electric Utilities Corporation,	:	
	:	
Respondent.	:	

**MOTION OF PPL ELECTRIC UTILITIES CORPORATION TO
DISMISS THE FORMAL COMPLAINT OF KYLE A. TOFFEY**

TO ADMINISTRATIVE LAW JUDGE ELIZABETH H. BARNES:

Pursuant to 52 Pa. Code §§ 5.371-5.372, PPL Electric Utilities Corporation (“PPL Electric” or the “Company”) hereby files this Motion to Dismiss the Formal Complaint filed by Kyle A. Toffey (“Complainant”) in the above-captioned proceeding, due to his failure to comply with the Order Granting Motion to Compel (“Order”) issued by Administrative Law Judge Elizabeth H. Barnes (“ALJ”) on August 7, 2019. In support of its Motion, PPL Electric states as follows:

I. INTRODUCTION

1. On January 7, 2019, PPL Electric was served with the Formal Complaint filed by the Complainant against the Company, which challenged the planned installation of the Company’s new automated metering infrastructure (“AMI”) meter at the service address.
2. On January 28, 2019, PPL Electric timely filed its Answer to the Complaint.
3. On February 1, 2019, a Notice was issued scheduling the telephonic evidentiary hearing for August 6, 2019, before the ALJ.

4. Also on February 1, 2019, a Prehearing Order was issued establishing certain procedural rules as well as the deadlines for the parties' exchange of written testimony and exhibits.

5. On May 8, 2019, PPL Electric served Interrogatories and Requests for Production of Documents on the Complainant – Set I (“PPL to Complainant Set I”) via email and certified mail. A true and correct copy of PPL to Complainant Set I is attached hereto and marked as **Appendix A.**

6. Pursuant to the Commission’s regulations, objections to PPL to Complainant Set I were due on or before May 20, 2019, and responses were due on or before May 28, 2019.

7. The Complainant never served any objections to PPL to Complainant Set I by May 20, 2019

8. On May 23, 2019, the Complainant served his responses to PPL to Complainant Set I. However, the Complainant refused to provide or did not provide the information and materials requested in PPL to Complainant Set I, Questions 2, 3, and 4(b)-(e). A true and correct copy of the Complainant’s responses PPL to Complainant Set I is attached hereto and marked as **Appendix B.**

9. On July 1, 2019, PPL Electric served its written direct testimony and exhibits, pursuant to the procedural schedule set forth in the Prehearing Order.

10. On July 12, 2019, PPL Electric filed a Motion to Compel responses to PPL to Complainant Set I, Questions 2, 3, and 4(b)-(e). The Company also filed a Motion for Protective Order.

11. The Complainant did not file an Answer to PPL Electric’s Motion to Compel.

12. On July 26, 2019, PPL Electric filed a letter requesting that the August 6, 2019 hearing be rescheduled for January 14, 2020.

13. On July 29, 2019, a Notice was issued rescheduling the hearing for January 14, 2020.

14. On August 7, 2019, the ALJ issued an Order granting PPL Electric's Motion to Compel. The Order specifically directed the Complainant to provide responses Questions 2, 3, and 4(b)-(e) to PPL Electric "no later than September 9, 2019." A true and correct copy of the Order Granting Motion to Compel is attached hereto as **Appendix C**.

15. As of the filing of this Motion, no complete responses to PPL to Complainant Set I, Questions 2, 3, and 4(b)-(e) have been received.

16. For the reasons explained herein, PPL Electric respectfully requests that the ALJ grant the instant Motion and dismiss the Complainant's Formal Complaint with prejudice, due to his failure to comply with the ALJ's August 7, 2019 Order Granting Motion to Compel and the Commission's regulations.

II. LEGAL STANDARDS

17. Under 52 Pa. Code § 5.321(c), a party is entitled to obtain discovery of any matter not privileged that is relevant to the pending proceeding, or any matter that is reasonably calculated to lead to the discovery of admissible evidence. Discovery is permitted regardless of whether the information sought "relates to the claim or defense of the party seeking discovery or to the claim or defense of another party." *Id.*

18. Answers to written interrogatories must "[a]nswer each interrogatory fully and completely unless an objection is made." *Id.* § 5.342(a)(4).

19. Upon the motion of a party, the presiding officer may make an appropriate order for sanctions if a party fails to answer or otherwise respond to a discovery request, or refused to obey an order of the presiding officer respecting discovery. *See* 52 Pa. Code § 5.371(a).

20. Among the potential sanctions, the ALJ may enter:

(1) An order that the matters regarding which the questions were asked, the character or description of the thing or land, the contents of the paper, or other designated fact shall be taken to be established for the purposes of the action in accordance with the claim of the party obtaining the order.

(2) An order refusing to allow the disobedient party to support or oppose designated claims or defenses, or prohibiting the party from introducing in evidence designated documents, things or testimony.

(3) An order striking out pleadings or parts thereof, staying further proceedings until the order is obeyed, or entering a judgment against the disobedient party or individual advising the disobedience.

(4) An order with regard to the failure to make discovery as is just.

52 Pa. Code § 5.372(a)(1)-(4) (emphasis added).

III. MOTION TO DISMISS FOR FAILURE TO COMPLY WITH THE ORDER GRANTING MOTION TO COMPEL

21. PPL Electric respectfully requests that the ALJ grant the instant Motion and dismiss the Complainant's Formal Complaint with prejudice, due to their failure to comply with the ALJ's August 7, 2019 Order Granting Motion to Compel.

22. Here, PPL Electric has propounded straightforward requests for the Complainant to provide information that is very relevant to the issues in this proceeding.

23. In Question 2, PPL Electric has asked that the Complainant identify all wireless phones, cellphones, microwaves, wireless routers, wifi networks, tablets, computers, Bluetooth

speakers, wireless security systems, smart speakers (e.g., Amazon Echo), garage door openers, baby monitors, and walkie talks that are contained in or used in the house. This inquiry is relevant to whether the Complainant exposes himself to technology that emits higher levels of radio frequency (“RF”) fields than the new AMI meter.

24. Relatedly, in Question 3, the Company has requested information regarding the Complainant’s cell phone usage and records of such usage. Using this information, PPL Electric could calculate the amount of the Complainant’s RF exposure from any cell phones and compare it to the lower amount of RF exposure from the new AMI meter.

25. In Question 4, PPL Electric has asked the Complainant to identify health conditions he alleges will be caused or worsened by the installation of the AMI meter and to provide any medical records of those alleged conditions. This is especially relevant because the Complainant has alleged that the AMI meter will cause adverse health effects, but he has provided absolutely no medical records.

26. By refusing to answer these interrogatories fully, even after being directed to do so by the ALJ, the Complainant is denying PPL Electric due process and preventing the full and complete development of the evidentiary record.

27. The Complainant’s actions demonstrate their disregard of the ALJ’s Order Granting Motion to Compel and the Commission’s regulations.

28. Importantly, the Commission has regularly dismissed AMI meter complaints with prejudice due to the complainants’ failure to answer discovery in compliance with the presiding administrative law judge’s orders granting motions to compel. *See, e.g., Carol Sojda and Carol Lutzkanin v. Metropolitan Edison Co.*, Docket No. C-2017-2638350, pp. 7-8 (Jan. 9, 2019), *adopted*, Docket No. C-2017-2638350 (Order entered Mar. 28, 2019); *Kimberly Beckmann v.*

Metropolitan Edison Co., Docket No. C-2017-2613702, pp. 7-10 (Jan. 31, 2019), *adopted*, Docket No. C-2017-2613702 (Order entered Apr. 11, 2019); *Darlene Stanton v. Pennsylvania Electric Co.*, Docket No. C-2018-3001144, pp. 6-11 (May 10, 2019), *adopted*, Docket No. C-2018-3001144 (Order entered July 11, 2019); *Diana Cook v. West Penn Power Co.*, Docket No. C-2018-3003051, pp. 6-10 (May 1, 2019), *adopted*, Docket No. C-2018-3003051 (Order entered July 11, 2019).

29. Thus, consistent with the Commission's regulations and precedent, PPL Electric respectfully requests that the ALJ grant the instant Motion and dismiss the Complainant's Formal Complaint with prejudice.

IV. CONCLUSION

For the reasons set forth above, PPL Electric Utilities Corporation respectfully requests that Administrative Law Judge Elizabeth H. Barnes grant this Motion and dismiss the Formal Complaint filed by Kyle A. Toffey with prejudice.

Respectfully submitted,



Kimberly A. Klock (ID # 89716)
Michael J. Shafer (ID # 205681)
PPL Services Corporation
Two North Ninth Street
Allentown, PA 18101
Phone: 610-774-2599
Fax: 610-774-4102
E-mail: kklock@pplweb.com
mjshafer@pplweb.com

Devin T. Ryan (ID # 316602)
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Phone: 717-731-1970
Fax: 717-731-1985
E-mail: dryan@postschell.com
glent@postschell.com

Curtis S. Renner (ID # 326488)
Watson & Renner
1901 Pennsylvania Avenue, NW
Suite 1005 - ENS
Washington, DC 20006
Phone: 202-737-6302
E-mail: crenner@w-r.com

Date: September 13, 2019

Attorneys for PPL Electric Utilities Corporation

APPENDIX A

Interrogatories and Requests for Production of Documents Propounded by PPL Electric Utilities Corporation on Kyle A. Toffey – Set I



17 North Second Street
12th Floor
Harrisburg, PA 17101-1601
717-731-1970 Main
717-731-1985 Main Fax
www.postschell.com

Devin Ryan

dryan@postschell.com
717-612-6052 Direct
717-731-1981 Direct Fax
File #: 167945

May 8, 2019

VIA CERTIFIED MAIL (7017 1450 0002 3778 1106)
VIA E-MAIL

Kyle A. Toffey
PO Box 99
Hamlin, PA 18437

Re: Kyle A. Toffey v. PPL Electric Utilities Corporation
Docket No. C-2019-3006931

Dear Mr. Toffey:

Enclosed are the Interrogatories and Requests for Production of Documents Propounded by PPL Electric Utilities Corporation on Kyle A. Toffey – Set I in the above-referenced proceeding. Copies will be provided as indicated on the Certificate of Service.

Please provide answers to the enclosed discovery within twenty (20) days of the date of service, pursuant to 52 Pa. Code § 5.342.

Sincerely,

Devin Ryan

DTR/jl
Enclosures

cc: Rosemary Chiavetta, Secretary (*Letter & Certificate of Service Only*)
Certificate of Service

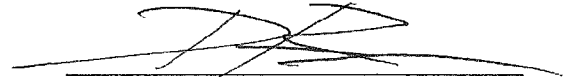
CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 Pa. Code § 1.54 (relating to service by a participant).

VIA E-MAIL & CERTIFIED MAIL

Kyle A. Toffey
PO Box 99
Hamlin, PA 18437
E-mail: kyle.toffey@gmail.com

Date: May 8, 2019



Devin T. Ryan

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Kyle A. Toffey,	:	
	:	
Complainant	:	
	:	
v.	:	Docket No. C-2019-3006931
	:	
PPL Electric Utilities Corporation,	:	
	:	
Respondent	:	

**INTERROGATORIES AND REQUESTS FOR
PRODUCTION OF DOCUMENTS PROPOUNDED BY
PPL ELECTRIC UTILITIES CORPORATION ON
KYLE A. TOFFEY – SET I**

Pursuant to 66 Pa.C.S. § 333 and 52 Pa. Code §§ 5.341 *et seq.*, PPL Electric Utilities Corporation (“PPL Electric”) propounds the following Interrogatories and Requests for Production of Documents (hereinafter, “discovery requests”) on Kyle A. Toffey (“Complainant”) – Set I.

INSTRUCTIONS AND DEFINITIONS

1. The “Responding Party,” “you,” or “your” means the party to which these discovery requests are propounded and/or all attorneys, agents, affiliates, subsidiaries, employees, consultants, members, constituents, and representatives acting on behalf of the Responding Party.
2. “Commission” means the Pennsylvania Public Utility Commission.
3. To “identify” a natural person means to state that person’s full name, title or position, employer, last known address, and last known telephone number.

4. To “identify” a business entity means to state the full name of such business, the form of the business, and its location or address.

5. To “identify” a “document” means to provide all of the following information irrespective of whether the document is deemed privileged or subject to any claim of privilege:

- a. The title or other means of identification of each such document;
- b. The date of each such document;
- c. The author, preparer or signer of each such document; and
- d. A description of the subject matter of such document sufficient to permit an understanding of its contents and importance to the testimony or position being examined and the present or last known location of the document. The specific nature of the document should also be stated (*e.g.*, letter, business record, memorandum, computer print-out, etc.).

In lieu of “identifying” any document, it shall be deemed a sufficient compliance with these discovery requests to attach a copy of each such document to the answers hereto and reference said document in the particular interrogatory to which the document is responsive.

6. “Document” means the original and all drafts of all written and graphic matter, however produced or reproduced, of any kind or description, whether or not sent or received, and all copies thereof which are different in any way from the original (whether by interlineation, date-stamp, notarization, indication of copies sent or received, or otherwise), including without limitation, any paper, book, account, photograph, blueprint, drawing, sketch, schematic, agreement, contract, memorandum, press release, circular, advertising material, correspondence, letter, telegram, telex, object, report, opinion, investigation, record, transcript, hearing, meeting, study, notation, working paper, summary, intra-office communication, diary, chart, minutes, index sheet, computer software, computer-generated records or files, however stored, check, check stub, delivery ticket, bill of lading, invoice, record or recording or summary of any telephone or other conversation, or of any interview or of any conference, or

any other written, recorded, transcribed, punched, taped, filmed, or graphic matter of which the Responding Party has or has had possession, custody or control, or of which the Responding Party has knowledge.

7. "Communication" means any manner or form of information or message transmission, however produced or reproduced, whether as a document as herein defined, or orally or otherwise, which is made, distributed, or circulated between or among persons, or data storage or processing units.

8. "Date" means the exact day, month, and year, if ascertainable, or if not, the best approximation thereof.

9. Items referred to in the singular include those in the plural, and items referred to in the plural include those in the singular.

10. Items referred to in the masculine include those in the feminine, and items referred to in the feminine include those in the masculine.

11. The answers provided to these discovery requests should first restate the question asked and identify the person(s) supplying the information.

12. In answering these discovery requests, the Responding Party is requested to furnish all information that is available to the Responding Party, including information in the possession of the Responding Party's attorneys, agents, consultants, or investigators, and not merely such information of the Responding Party's own knowledge. If any of the discovery requests cannot be answered in full after exercising due diligence to secure the requested information, please so state and answer to the extent possible, specifying the Responding Party's inability to answer the remainder, and stating whatever information the Responding

Party has concerning the unanswered portions. If the Responding Party's answer is qualified in any particular, please set forth the details of such qualification.

13. If the Responding Party objects to providing any document requested on any ground, identify such document by describing it as set forth in Instruction 5 and state the basis of the objection.

14. If the Responding Party objects to part of a discovery request and refuses to answer that part, state the Responding Party's objection and answer the remaining portion of that discovery request. If the Responding Party objects to the scope or time period of a discovery request and refuses to answer for that scope or time period, state the Responding Party's objection and answer the discovery request for the scope or time period that the Responding Party believes is appropriate.

15. If, in connection with a discovery request, the Responding Party contends that any information, otherwise subject to discovery, is covered by either the attorney-client privilege, the so-called "attorneys' work product doctrine," or any other privilege or doctrine, then specify the general subject matter of the information and the basis to support each such objection.

16. If any information is withheld on grounds of privilege or other protection from disclosure, provide the following information: (a) every person to whom such information has been communicated and from whom such information was learned; (b) the nature and subject matter of the information; and (c) the basis on which the privilege or other protection from disclosure is claimed.

17. As set forth in 52 Pa. Code § 5.342(g), these discovery requests are continuing, and the Responding Party is obliged to change, supplement, and correct all answers given to conform to new or changing information.

18. "Formal Complaint" means the Formal Complaint filed by the Complainant at Docket No. C-2019-3006931.

**INTERROGATORIES AND REQUESTS FOR
PRODUCTION OF DOCUMENTS PROPOUNDED ON
KYLE A TOFFEY – SET I**

PPL to Complainant-I-1

Re: Formal Complaint.

- (a) Please explain in detail the reasons why you are challenging the Company's installation of the new smart meter.
- (b) Please describe in detail all health concerns, if any, raised by the Company's new smart meter, state the bases for such claims, and provide all documents relied upon by you in your response.
- (c) Please describe in detail all safety concerns, if any, raised by the Company's new smart meter, state the bases for such claims, and provide all documents relied upon by you in your response.
- (d) Please describe in detail all privacy concerns, if any, raised by the Company's new smart meter, state the bases for such claims, and provide all documents relied upon by you in your response.
- (e) Please describe in detail all reasons you believe the Company's new smart meter violates the law.

PPL to Complainant-I-2

Please identify all wireless phones, cellphones, microwaves, wireless routers, wifi networks, tablets, computers, Bluetooth speakers, wireless security systems, smart speakers (*e.g.*, Amazon Echo), garage door openers, baby monitors, and walkie talkies that are contained in or used in the house.

PPL to Complainant-I-3

Please state whether you or any member of your household uses a cell phone. If so, please provide the make and model of each cell phone and, for each phone identified, provide 12 months of phone bills or other records of actual cell phone usage.

PPL to Complainant-I-4

- (a) Please state every health condition you claim was caused by a smart meter or will be caused or worsened by the installation of PPL Electric's new smart meter.
- (b) Please provide the date that every health condition identified in subpart (a) began.

- (c) Please provide copies of all your medical records of every health condition identified in subpart (a).
- (d) For each alleged health condition that you do not have medical records for in response to subpart (c), please state whether such condition was diagnosed by a medical professional. If so, please provide the name, address, and telephone number of the medical professional and the date of the diagnosis.
- (e) For each of the alleged health conditions identified in subpart (a), please state whether you have been prescribed any therapy or treatment for the condition by a medical professional. If so, please identify the therapy or treatment, provide the name, address, and telephone number of the prescribing medical professional, and provide the date the therapy or treatment was prescribed.

PPL to Complainant-I-5

Please identify each person you plan to call as a fact witness in this proceeding. For each person, please:

- (a) Provide the person's name, home and business address, background, and qualifications;
- (b) Explain in detail the subject matter(s) on which the witness is expected to testify; and
- (c) Provide the source(s) of information relied upon or referenced by the witness.

PPL to Complainant-I-6

Please identify each person you plan to call as an expert witness in this proceeding. For each person, please:

- (a) Provide the person's name, home and business address, background, and qualifications;
- (b) Explain in detail the subject matter(s) on which the witness is expected to testify;
- (c) Provide the source(s) of information relied upon or referenced by the witness; and
- (d) Provide a copy of the expert witness's current curriculum vitae.

PPL to Complainant-I-7

Please provide copies of all exhibits you intend to present or utilize at the evidentiary hearing in this proceeding. For each exhibit to be used as part of your direct case, please identify the witness who will be sponsoring the exhibit.

APPENDIX B

Kyle A. Toffey's Answers to PPL Electric Utilities Corporation's Interrogatories and Requests for Production of Documents – Set I

Complainant Responses to
Interrogatories and Request of Production of Documents
Propounded on Kyle A Toffey by PPL
Docet No. C-2019-3006931

Complainant-I-1

- (a) My objection to the installation of a smart meter is for the following concerns: health, safety, privacy reasons.
- (b) Health Reasons
There are a myriad of health issues that have been documented in relationship to the microwave / radio frequencies generated by smart meters. I don't want to expose my family or myself to these risks.
- (c) Safety Reasons

It has come to my attention that the utility meter you and your employees or agents plan to install on our property contain flammable and delicate electronics for power diversion, data collection and processing, and/or the capacity for transmission of radio signals. Those flammable and delicate electronics are directly in circuit with your electrical power grid which is subject to multi-thousand volt surges without warning which represents inexcusable negligence on your part and extreme hazard to our property and safety due to the fact that the electronic instruments included in your meters cannot survive any substantial grid line surge (2000 volts or greater) without total failure and often without fire and/or explosion.

Mainstream media has reported thousands of fires caused by electronic utility meters, yet fires in legacy electromechanical utility meters are virtually unheard of.

Examination of electronic utility meters clearly shows them to be lacking the requisite surge protection to protect the flammable and delicate electronics therein. In fact, it is doubtful that surge protection is possible inside a device as small as a utility meter when electronic micro circuits are present.

Meter should be UL approved to put on my building.

Also referred to as "transients" or "Electric Fields", these are harmful electric fields in your living spaces caused by the power supply for the surveillance device in your utility meter. Some experts believe this has caused a cancer epidemic and is very hazardous to health in many ways.

Disrupted current on house wiring will not only cause health problems for occupants of your property, it damages your appliances and electronics, and it causes your utility bill to go up with the wasted energy.

- (d) Privacy Reasons

With the new electronic utility meters, the electric company will collect a highly revealing profile of your personal and private activities and living habits inside your home with time-of-day metrics in a database which they will store for years and share with law enforcement, government agencies, insurance companies, possible spouse's divorce lawyer, criminal hackers, etc, etc. This is a violation of my 4th Amendment rights.

- (e) Violations of the Law

- (a) Knowingly exposing me and my family to harmful radiation is a violation of the law. There is no warning label describing the dangers of the smart meters.
- (b) Unwarranted surveillance is illegal
- (c) PPL is attempting to inflict their unsafe meters upon my home, against my consent; against basic fundamental property rights; and in excess of PPL's regulatory authority granted by both federal and Pennsylvania law. Both those government authorities make the smart

meter program voluntary only. Cf. Pub. L. 109-58 the Energy Policy Act of 2005 §1252. Smart Metering; Pennsylvania HB2200 §2807(f)7(2) and PA P.L. 1592, No. 129.

Complainant-I-2

I object to the relevancy of this request because my concern is with the unhealthy radio waves produced by your smart meters and the dirty electricity they generate.

Subject to my objection, I note that I have removed most of all items in my home generating radio and magnetic frequencies because of my health concerns. For example we do not have a microwave oven, television, or Bluetooth appliances. Our computers are hardwired and we don't use WiFi. We have a corded house phone and I don't have a smartphone.

Complainant-I-3

I object to the relevancy of this request.

Complainant-I-4

(a) The following are a list of health conditions that I am concerned will be caused or worsened by the smart meters.

- Sleep problems (insomnia, difficulty falling asleep, night waking, nightmares)
- Stress, agitation, anxiety, irritability
- Headaches, sharp pain or pressure in the head
- Ringing in the ears, ear pain, high pitched ringing
- Concentration, memory or learning problems
- Fatigue, muscle or physical weakness
- Disorientation, dizziness, or balance problems
- Eye problems, including eye pain, pressure in the eyes,
- Cardiac symptoms, heart palpitations, heart arrhythmias, chest pain
- Leg cramps, or neuropathy
- Arthritis, body pain, sharp, stabbing pains
- Nausea, flu-like symptoms
- Sinus problems, nose bleeds
- Respiratory problems, cough, asthma
- Skin rashes, facial flushing
- Urinary problems
- Endocrine disorders, thyroid problems, diabetes
- High blood pressure
- Changes in menstrual cycle
- Hyperactivity or changes in children's behavior
- Seizures
- Recurrence of cancer

(b) I object to the relevancy of this request on two counts.

(a) A smart meter has not been installed so I can not provide any dates

(b) I don't want to discuss such sensitive information which, according to the HIPAA privacy rights, "Most of us believe that our medical and other health information is private and should be protected, and we want to know who has this information. The Privacy Rule, a Federal law, gives you rights over your health information and sets rules and limits on who can look at and receive your health information. The Privacy Rule applies to all forms of individuals' protected health information, whether electronic, written, or oral. The Security Rule is a Federal law that requires security for health information in electronic form"

(c) I object to the relevancy of this request, as previously stated in Complainant-I-4 (b)

(d) I object to the relevancy of this request, as previously stated in Complainant-I-4 (b)

(e) I object to the relevancy of this request, as previously stated in Complainant-I-4 (b)

Complainant-I-5

No fact witnesses are being called. I am simply a property owner trying to opt-out of using equipment I have determined to be detrimental to my family's health based on research I have done.

Complainant-I-6

No expert witnesses are being called. I am simply a property owner trying to opt-out of using equipment I have determined to be detrimental to my family's health based on research I have done.

Complainant-I-7

The following exhibits are included:

Ref: Complainant-I-7-a

Ref: Complainant-I-7-b

Ref: Complainant-I-7-a

Exhibit:

“Independent Science on the Effect of Wireless Radiation on Human Health (updated Nov. 2018)”

Source:

Grassroots Environmental Education • 52 Main Street • Port Washington • New York • (516) 883-0887

Relevancy:

This is a list of over 150 reports and study results explaining the dangers of the kinds of wireless radiation produced by SmarMeter such as PPL uses. These studies are from governmental and private agencies. These provide irrefutable information about the harm of caused my your devices.

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Independent Science on the Effect of Wireless Radiation on Human Health
Updated November 2018

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I. EFFECTS ON FETAL AND NEWBORN DEVELOPMENT

1. **The Effects of Radiofrequency Radiation on Mice Fetus Weight, Length and Tissues.** Alimohammadi, I., et al. *Data in Brief* 19:2189-2194 (2018).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6141437/pdf/main.pdf>
2. **Exposure to Magnetic Field Non-Ionizing Radiation and the Risk of Miscarriage: A prospective Cohort Study.** Li, D., et al. *Scientific Reports* (2017).
<https://www.nature.com/articles/s41598-017-16623-8>
3. **Multiple Assessment Methods of Prenatal Exposure to Radio Frequency Radiation from Telecommunication in the Mothers and Children's Environmental Health (MOCEH) Study.** Choi, KH., et al. *International Journal of Occupational Medicine and Environmental Health* 29(6):959-972 (2016).
<https://www.ncbi.nlm.nih.gov/pubmed/27869246?dopt=Abstract>
4. **The Use of Signal-Transduction and Metabolic Pathways to Predict Human Disease Targets from Electric and Magnetic Fields Using *in vitro* Data in Human Cell Lines.** Parham, F., et al. *Frontiers in Public Health* (2016).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5013261/>
5. **A Review on Electromagnetic Fields (EMFs) and the Reproductive System.** Asghari, A., et al. *Electronic Physician Journal* 8(7):2655-2662 (2016).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5014506/>

6. **Genotoxicity Induced by Foetal and Infant Exposure to Magnetic Fields and Modulation of Ionising Radiation Effects.** Udrouiu, I., et al. *PLoS One* (2015). <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0142259>
7. **Oxidative Stress of Brain and Liver is Increased by Wi-Fi (2.45 GHz) Exposure of Rats During Pregnancy and the Development of Newborns.** Çelik, Ö., et al. *Journal of Chemical Neuroanatomy* 75(Pt B):134-139 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/26520617>
8. **Neurodegenerative Changes and Apoptosis Induced by Intrauterine and Extrauterine Exposure of Radiofrequency Radiation.** Güler, G., et al. *Journal of Chemical Neuroanatomy* 75(Pt B):128-133 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/26520616>
9. **Maternal Exposure to a Continuous 900-MHz Electromagnetic Field Provokes Neuronal Loss and Pathological Changes in Cerebellum of 32-Day-Old Female Rat Offspring.** Odacı, E., et al. *Journal of Chemical Neuroanatomy* 75(Pt B):105-110 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/26391347>
10. **Different Periods of Intrauterine Exposure to Electromagnetic Field: Influence on Female Rats' Fertility, Prenatal and Postnatal Development.** Alchalabi, A., et al. *Asian Pacific Journal of Reproduction* 5(1):14-23 (2015). <https://www.sciencedirect.com/science/article/pii/S2305050015000536>
11. **Use of Mobile Phone During Pregnancy and the Risk of Spontaneous Abortion.** Mahmoudabadi, F., et al. *Journal of Environmental Health Science and Engineering* 13:34 (2015). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4416385/>
12. **Oxidative Mechanisms of Biological Activity of Low-Intensity Radiofrequency Radiation.** Yakymenko, I., et al. *Electromagnetic Biology and Medicine* 35(2):186-202 (2016). <https://www.ncbi.nlm.nih.gov/pubmed/26151230>
13. **Effects of Prenatal 900 MHz Electromagnetic Field Exposures on the Histology of Rat Kidney.** Ulubay, M., et al. *International Journal of Radiation Biology* 91(1):35-41 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/25084839>
14. **The Effect of Exposure of Rats During Prenatal Period to Radiation Spreading from Mobile Phones on Renal Development.** Bedir, R., et al. *Renal Failure* 37(2):305-9 (2015). <https://www.ncbi.nlm.nih.gov/pubmed/25691088?dopt=Abstract>

15. **Dosimetric Study of Fetal Exposure to Uniform Magnetic Fields at 50 Hz.** Liorni, I., et al. *Bioelectromagnetics* 35(8):580-97 (2014).
<https://www.ncbi.nlm.nih.gov/pubmed/25266786>
16. **Influence of Pregnancy Stage and Fetus Position on the Whole-Body and Local Exposure of the Fetus to RF-EMF.** Varsier, N. et al. *Physics in Medicine and Biology* 59(17):4913-26 (2014).
<https://www.ncbi.nlm.nih.gov/pubmed/25098501?dopt=Abstract>
17. **Autism-Relevant Social Abnormalities in Mice Exposed Perinatally to Extremely Low Frequency Electromagnetic Fields.** Alsaed, I., et al. *International Journal of Developmental Neuroscience* 37:58-6 (2014).
<https://www.ncbi.nlm.nih.gov/pubmed/24970316?dopt=Abstract>
18. **Pyramidal Cell Loss in the Cornu Ammonis of 32-day-old Female Rats Following Exposure to a 900 Megahertz Electromagnetic Field During Prenatal Days 13–21.** Bas, O., et al. *NeuroQuantology* 11(4): 591-599 (2013).
<https://neuroquantology.com/index.php/journal/article/viewFile/701/625>
19. **The Effects of 900 Megahertz Electromagnetic Field Applied in the Prenatal Period on Spinal Cord Morphology and Motor Behavior in Female Rat Pups.** Odaci, E., et al. *NeuroQuantology* 11(4): 573-581 (2013).
<https://www.neuroquantology.com/index.php/journal/article/view/698>
20. **Fetal Radiofrequency Radiation Exposure From 800-1900 MHz-Rated Cellular Telephones Affects Neurodevelopment and Behavior in Mice.** Aldad, T., et al. *Science Reports* 2:312 (2012). <https://www.nature.com/articles/srep00312>
21. **Cranial and Postcranial Skeletal Variations Induced in Mouse Embryos by Mobile Phone Radiation.** Fragopoulou, AF., et al. *Pathophysiology* 17(3):169-77 (2010).
<https://www.ncbi.nlm.nih.gov/pubmed/19854628>
22. **Dysbindin Modulates Prefrontal Cortical Glutamatergic Circuits and Working Memory Function in Mice.** Jentsch, JD., et al. *Neuropsychopharmacology* 34, 2601–8 (2009). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2762021/>
23. **Stress Signalling Pathways that Impair Prefrontal Cortex Structure and Function.** Arnsten, A. *National Review of Neuroscience* 10, 410–22 (2009).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2907136/>

24. **Maternal Occupational Exposure to Extremely Low Frequency Magnetic Fields and the Risk of Brain Cancer in the Offspring.** Li, P, et al. *Cancer Causes & Control* 20(6):945-55 (2009). <https://www.ncbi.nlm.nih.gov/pubmed/19224378>
25. **Reproductive and Developmental Effects of EMF in Vertebrate Animal Models.** Pourlis, A.F. *Pathophysiology* 16(2-3):179-89 (2009).
<https://www.ncbi.nlm.nih.gov/pubmed/19272761>
26. **Prenatal and Postnatal Exposure to Cell Phone Use and Behavioral Problems in Children.** Divan, HA., et al. *Epidemiology* 19(4):523-29 (2008).
<https://www.ncbi.nlm.nih.gov/pubmed/18467962>
27. **Effects of Prenatal Exposure to a 900 MHz Electromagnetic Field on the Dentate Gyrus of Rats: A Stereological and Histopathological Study.** Odaci, E., et al. *Brain Research* 1238: 224–229 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18761003>
28. **Exposure to Cell Phone Radiation Up-Regulates Apoptosis Genes in Primary Cultures of Neurons and Astrocytes.** Zhao, T., et al. *Neuroscience Letters* 412: 34–38 (2007). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2713174/>
29. **Cell Death Induced by GSM 900-MHz and DCS 1800-MHz Mobile Telephony Radiation.** Panagopoulos, DJ., et al. *Mutation Research* 626, 69–78 (2006).
<https://www.ncbi.nlm.nih.gov/pubmed/17045516>
30. **Ultra High Frequency-Electromagnetic Field Irradiation During Pregnancy Leads to an Increase in Erythrocytes Micronuclei Incidence in Rat Offspring.** Ferreira, A., et al. *Life Sciences* 80(1):43-50 (2006). <https://www.ncbi.nlm.nih.gov/pubmed/16978664>
31. **Attention-Deficit Hyperactivity Disorder.** Biederman, J. & Faraone, S. V. *Lancet* 366(9506): 237–248 (2005). <https://www.ncbi.nlm.nih.gov/pubmed/16023516>
32. **Attention-Deficit/Hyperactivity Disorder: An Overview of the Etiology and a Review of the Literature Relating to the Correlates and Lifecourse Outcomes for Men and Women.** Brassett-Harknett, A. & Butler, N. *Clinical Psychology Review* 27(2): 188–210 (2005). <http://europepmc.org/abstract/med/16081194>

II. EFFECTS ON YOUNG CHILDREN

1. **Electromagnetic Fields, Pulsed Radiofrequency Radiation, and Epigenetics: How Wireless Technologies May Affect Childhood Development.** Sage, C. & Burgio, E. *Child Development* 89(1):129-136 (2017).
<https://www.ncbi.nlm.nih.gov/pubmed/28504324>

2. **Prospective Cohort Analysis of Cellphone Use and Emotional and Behavioural Difficulties in Children.** Sudan, M., et al. *Journal of Epidemiology and Community Health* 70(12):1207-1213 (2016). <https://www.ncbi.nlm.nih.gov/pubmed/27217533>
3. **Why Children Absorb More Microwave Radiation than Adults: The Consequences.** Morgan, L., et al. *Journal of Microscopy and Ultrastructure* 2(4):196-204 (2014). <https://www.sciencedirect.com/science/article/pii/S2213879X14000583>
4. **Epidemiological Characteristics of Mobile Phone Ownership and Use in Korean Children and Adolescents.** Byun, Y., et al. *Environmental Health and Toxicology* 28 (2013). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3909745/>
5. **A Prospective Study of In-Utero Exposure to Magnetic Fields and the Risk of Childhood Obesity.** Li, D., et al. *Scientific Reports* 2(540) (2012). <https://www.nature.com/articles/srep00540>
6. **Exposure to Extremely Low-Frequency Magnetic Fields and the Risk of Childhood Cancer: Update of the Epidemiological evidence.** Schüz, J. *Progress in Biophysics and Molecular Biology* 107(3):339-42 (2011). <https://www.sciencedirect.com/science/article/pii/S0079610711001076>
7. **Cell Phone Use and Behavioural Problems in Young Children.** Divan, HA., et al. *Journal of Epidemiol Community Health* 66(6):524-9 (2010). <https://www.ncbi.nlm.nih.gov/pubmed/21138897>
8. **Mobile Phones, Radiofrequency Fields, and Health Effects in Children-Epidemiological Studies.** Feychting, M. *Progress in Biophysics and Molecular Biology* 107(3):343-348 (2010). <https://www.sciencedirect.com/science/article/pii/S0079610711001210>
9. **Exposure to Radio-Frequency Electromagnetic Fields and Behavioral Problems in Bavarian Children and Adolescents.** Thomas, S., et al. *European Journal of Epidemiology* 25(2):135-41 (2009). <https://link.springer.com/article/10.1007/s10654-009-9408-x>
10. **The Sensitivity of Children to Electromagnetic Fields.** Kheifets, L., et al. *Deventer Journal of Pediatrics* 116(2):303-313 (2005). <http://pediatrics.aappublications.org/content/116/2/e303>

III. BRAIN TUMORS

1. **Report of Final Results Regarding Brain and Heart Tumors in Sprague-Dawley Rats Exposed From Prenatal Life Until Natural Death to Mobile Phone Radiofrequency Field Representative of a 1.8 GHz GSM Base Station Environmental Emission.** Falcioni, L., et al. *Environmental Research* (2018). <https://www.ncbi.nlm.nih.gov/pubmed/29530389>
2. **Brain Tumours: Rise in Glioblastoma Multiforme Incidence in England 1995-2015 Suggests an Adverse Environmental or Lifestyle Factor.** Philips, A., et al. *Journal of Environmental and Public Health* (2018). <https://www.hindawi.com/journals/jep/2018/7910754/>
3. **The 2100 MHz Radiofrequency Radiation of a 3G-Mobile Phone and the DNA Oxidative Damage in Brain.** Sahin, D., et al. *Journal of Chemical Neuroanatomy* 75(Pt B):94-98 (2016). <http://www.sciencedirect.com/science/article/pii/S0891061816000041>
4. **Mobile Phone and Cordless Phone Use and the Risk for Glioma - Analysis of Pooled Case-Control Studies in Sweden 1997-2003 and 2007-2009.** Hardell, L. and Carlberg, M. *PathoPhysiology* 22(1):1-13 (2015). <http://www.ncbi.nlm.nih.gov/pubmed/25466607>
5. **Mobile Phone Radiation Causes Brain Tumors and Should Be Classified as a Probable Human Carcinogen.** Morgan, L., et al. *International Journal of Oncology* 46:1865-1871 (2015). <https://www.spandidos-publications.com/ijo/46/5/1865>
6. **Mobile Phone Use and Brain Tumours in the CERENAT Case-Control Study.** Coureau, G., et al. *Occupational & Environmental Medicine* 71(7):514-22 (2014). <http://www.ncbi.nlm.nih.gov/pubmed/24816517>
7. **Use of Mobile Phones and Cordless Phones is Associated with Increased Risk for Glioma and Acoustic Neuroma.** Hardell, L., Carlberg, M. and Hansson Milk, K. *PathoPhysiology* 20(2):85-110 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/23261330>
8. **Mobile Phones and Head Tumours: A Critical Analysis of Case-Control Epidemiological Studies.** Levis, A.G., et al. *Open Environmental Sciences* 6(1):1-12 (2012). <https://benthamopen.com/contents/pdf/TOENVIRJ/TOENVIRJ-6-1.pdf>
9. **On the Association Between Glioma, Wireless Phones, Heredity and Ionising Radiation.** Carlberg, M. and Hardell, L. *PathoPhysiology* 19(4):243-252 (2012). <https://www.ncbi.nlm.nih.gov/pubmed/22939605>

10. **Mobile Phones and Head Tumours. The Discrepancies in Cause-Effect Relationships in the Epidemiological Studies - How Do They Arise?** Levis, A.G., et al. *Environmental Health* 10:59 (2011). <http://www.ncbi.nlm.nih.gov/pubmed/21679472>
11. **Indications of Possible Brain Tumour Risk in Mobile-Phone Studies: Should We Be Concerned?** Cardis, E. and Sadetzki, S. *Occupational & Environmental Medicine* 68:169-171 (2011). <http://oem.bmj.com/content/early/2010/12/15/oem.2010.061358>
12. **Estimating the Risk of Brain Tumors from Cell Phone Use: Published Case-Control Studies.** Morgan, LL. *Pathophysiology* 16(2-3):137-147 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19356911>
13. **Cell Phones and Brain Tumors: A Review Including the Long-Term Epidemiologic Data.** Khurana, V.G., et al. *Surgical Neurology* 72(3):205-14 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19328536>
14. **Epidemiological Evidence for an Association Between Use of Wireless Phones and Tumor Diseases.** Hardell, L., Carlberg, M. and Hansson Mild, K. *PathoPhysiology* 16(2-3):113-122 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19268551>
15. **Histopathological Examinations of Rat Brains After Long-Term Exposure to GSM-900 Mobile Phone Radiation.** Grafström, G., et al. *Brain Research Bulletin* 77(5):257-63 (2008). <http://www.ncbi.nlm.nih.gov/pubmed/18782606>
16. **Mobile Phone Use and the Risk of Acoustic Neuroma.** Lonn, S., et al. *Epidemiology* 15(6):653-659 (2004). <https://www.ncbi.nlm.nih.gov/pubmed/15475713>

IV. PAROTID GLAND TUMORS

1. **Does Cell Phone Use Increase the Chances of Parotid Gland Tumor Development? A Systematic Review and Meta-Analysis.** De Siqueira, EC., et al. *Journal of Oral Pathology and Medicine* 46(7) 480-483 (2017). <https://www.ncbi.nlm.nih.gov/pubmed/27935126?dopt=Abstract>
2. **Pooled Analysis of Case-Control Studies on Acoustic Neuroma Diagnosed 1997-2003 and 2007-2009 and Use of Mobile and Cordless Phones.** Hardell, L. and Carlberg, M. *International Journal of Oncology* 43(4):1036-1044 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/23877578>
3. **Using the Hill Viewpoints from 1965 for Evaluating Strengths of Evidence of the Risk for Brain Tumors Associated with use of Mobile and Cordless Phones.** Hardell, L. and Carlberg, M. *Reviews on Environmental Health* 28(2-3):97-106 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/24192496>

4. **Case-Control study of the Use of Mobile and Cordless Phones and the Risk for Malignant Melanoma in the Head and Neck Region.** Hardell, L., Carlberg, M., Hansson Mild, K. & Eriksson, M. *Pathophysiology* 18(4):325-333 (2011). <http://www.sciencedirect.com/science/article/pii/S0928468011000320>
5. **Correlation Between Cellular Phone Use and Epithelial Parotid Gland Malignancies.** Duan, Y., Zhang, HZ. And Bu, RF. *International Journal of Oral and Maxillofacial Surgery* 40(9):966-972 (2011). <http://www.ncbi.nlm.nih.gov/pubmed/21474287>
6. **Mobile Phones Use and Risk of Tumors: A Meta-Analysis.** Myung, SK., et al. *Journal of Clinical Oncology* 27(33):5565-72 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19826127>
7. **Mobile Phone, Cordless Phones and the Risk for Brain Tumours.** Hardell, L. and Carlberg, M. *International Journal of Oncology* 35(1):5-17 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19513546>
8. **Public Health Implications of Wireless Technologies.** Sage, C. and Carpenter, DO. *PathoPhysiology* 16(2-3):233-46 (2009). <https://www.ncbi.nlm.nih.gov/pubmed/19285839>
9. **Epidemiological Evidence for an Association Between use of Wireless Phones and Tumor Diseases.** Hardell, L., Carlberg, M and Hansson Mild, K. *PathoPhysiology* 16(2-3):113-122 (2009). <http://www.sciencedirect.com/science/article/pii/S0928468009000091>
10. **Cell Phone Use and Risk of Benign and Malignant Parotid Gland Tumors - A Nationwide Case-Control Study.** Sadetzki, S., et al. *American Journal of Epidemiology* 167(4):457-467 (2007). <http://aje.oxfordjournals.org/content/167/4/457.abstract>

V. OTHER MALIGNANCIES

1. **Tumor Promotion by Exposure to Radiofrequency Electromagnetic Fields Below Exposure Limits for Humans.** Lerchl, A., et al. *Biochemical and Biophysical Research Communications* 459(4):585-590 (2015). <http://www.sciencedirect.com/science/article/pii/S0006291X15003988>
2. **Swedish Review Strengthen Grounds for Concluding that Radiation from Cellular and Cordless Phones is a Probable Human Carcinogen.** Davis, DL., et al. *Pathophysiology* 20(2):123-129 (2013). <http://www.ncbi.nlm.nih.gov/pubmed/23664410>

3. **Multifocal Breast Cancer in Young Women with Prolonged Contact Between Their Breasts and Their Cellular Phones.** West, J., et al. *Case Reports in Medicine* (2013). <http://www.hindawi.com/journals/crim/2013/354682/>
4. **Epidemiological Evidence for an Association Between Use of Wireless Phones and Tumor Diseases.** Hardell, L., Carlberg, M. and Hansson Mild, K. *PathoPhysiology* 16(2-3):113-122 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19268551>
5. **Study on Potential Effects of “902 MHz GSM-type Wireless Communication Signals” on DMBA-Induced Mammary Tumours in Sprague-Dawley Rats.** Hruby, R., et al. *Mutation Research* 649(1-2):34-44 (2008). <http://www.ncbi.nlm.nih.gov/pubmed/17981079>

VI. EFFECTS ON DNA

1. **Microwaves from Mobile Phones Inhibit 53BP1 Focus Formation in Human Stem Cells More Strongly Than in Differentiated Cells: Possible Mechanistic Link to Cancer Risk.** Markova, E., et al. *Environmental Health Perspectives* 118(3):394-399 (2010). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854769/>
2. **Radiofrequency Radiation and Gene/Protein Expression: A Review.** McNamee, JP. and Chauhan, V. *Radiation Research* 172(3):265-287 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19708776>
3. **Evaluation of HSP70 Expression and DNA Damage in Cells of a Human Trophoblast Cell Line Exposed to 1.8GHz Amplitude-Modulated Radiofrequency Fields.** Valbonesi, P., et al. *Radiation Research* 169(3):270-279 (2008). <http://www.ncbi.nlm.nih.gov/pubmed/18302482>
4. **Gene and Protein Expression Following Exposure to Radiofrequency Fields from Mobile Phones.** Vanderstraeten, J. and Verschaeve, L. *Environmental Health Perspectives* 116(9):1131-5 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18795152>
5. **Nonthermal Effects of RadioFrequency-Field Exposure on Calcium Dynamics in Stem Cell-derived Neuronal Cells: Elucidation of Calcium Pathways.** Rao, V.S., et al. *Radiation Research* 169(3):319-329 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18302487>
6. **Gene Expression Changes in the Skin of Rats Induced by Prolonged 35 GHz Millimeter-Wave Exposure.** Millenbaugh, NJ., et al. *Radiation Research* 169(3):288-300 (2008). <http://www.ncbi.nlm.nih.gov/pubmed/18302488>

7. **DNA Damage in Molt-4 T-lymphoblastoid Cells Exposed to Cellular Telephone Radiofrequency Fields in Vitro.** Philips, J., et al. *Bioelectrochemistry and Bioenergetics* 45(1):103-110 (1998).
<http://www.sciencedirect.com/science/article/pii/S0302459898000749>

VII. NEUROLOGICAL/COGNITIVE EFFECTS

1. **Mobile Phone distance From Head and Temperature Changes of Radio Frequency Waves on Brain Tissue.** Forouharmajd, F., Ebrahimi, H. and Pourabdian, S. *International Journal of Preventative Medicine* (2018).
<https://www.ncbi.nlm.nih.gov/pubmed/30123435>
2. **A Prospective Cohort Study of Adolescents' Memory Performance and Individual Brain Dose of Microwave Radiation from Wireless Communication.** Foerster, M., et al. *Environmental Health Perspectives* 126(7) (2018).
<https://ehp.niehs.nih.gov/ehp2427/#tab3>
3. **Electromagnetic Radiation 2450 MHz Exposure Causes Cognition Deficit with Mitochondrial Dysfunction and Activation of Intrinsic Pathway of Apoptosis in Rats.** Gupta, S.K., Mesharam, M.K., and Krishnamurthy, S. *Journal of Biosciences* 43(2) 263-276 (2018). <https://www.ias.ac.in/article/fulltext/jbsc/043/02/0263-0276>
4. **The Effect of Wi-Fi Electromagnetic Waves in Unimodal and Multimodal Object Recognition Tasks in Male Rats.** Hassanshahi, A., et al. *Neurological Sciences* 38(6):1069-1076 (2017). <https://www.ncbi.nlm.nih.gov/pubmed/28332042>
5. **Effects of Short and Long Term Electromagnetic Fields Exposure on the Human Hippocampus.** Deniz, O.G., et al. *Journal of Microscopy and Ultrastructure* 5(4):191-197 (2017). <https://www.sciencedirect.com/science/article/pii/S2213879X17300524>
6. **Effects of Long Term Exposure of 900-1800 MHz Radiation Emitted from 2G Mobile Phone on Mice Hippocampus – A Histomorphometric Study.** Mugunthan, N., et al. *Journal of Clinical and Diagnostic Research* 10(8):AF01-6 (2016).
<https://www.ncbi.nlm.nih.gov/pubmed/27656427?dopt=Abstract>
7. **Effect of Mobile Phone Radiation on Pentylentetrazole-Induced Seizure Threshold in Mice.** Kouchaki, E., et al. *Iranian Journal of Basic Medical Sciences* 19(7):800-3 (2016). <https://www.ncbi.nlm.nih.gov/pubmed/27635206?dopt=Abstract>
8. **Effects of 3 Hz and 60Hz Extremely Low Frequency Electromagnetic Fields on Anxiety-Like Behaviors, Memory Retention of Passive Avoidance and ElectroPhysiological Properties of Male Rats.** Rostami, A., et al. *Journal of Lasers in Medical Science* 7(2):120-125 (2016). <http://www.ncbi.nlm.nih.gov/pubmed/27330708>

9. **Short-Term Memory in Mice is Affected by Mobile Phone Radiation.** Ntzouni, MP., et al. *Pathophysiology* 18(3):193-199 (2011).
<http://www.ncbi.nlm.nih.gov/pubmed/21112192>
10. **Use of Mobile Phones and Changes in Cognitive Function in Adolescents.** Thomas, S., et al. *Occupational Environmental Medicine* 67(12):861-866 (2010).
<http://www.ncbi.nlm.nih.gov/pubmed/20798018>
11. **Increased Blood-Brain Barrier Permeability in Mammalian Brain 7 Days After Exposure to the Radiation from a GSM-900 Mobile Phone.** Nittby, H., et al. *Pathophysiology* 16(2-3):103-112 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19345073>
12. **Effects of GSM 1800 MHz on Dendritic Development of Cultured Hippocampal Neurons.** Ning, W., et al. *Acta Pharmacologica Sinica* 28(12):1873-1880 (2007).
<http://www.ncbi.nlm.nih.gov/pubmed/18031599>
13. **Neurological Effects of Radiofrequency Electromagnetic Radiation.** Lai, H. *Advances in Electromagnetic Fields in Living Systems* 1:27-80 (1994).
http://link.springer.com/chapter/10.1007%2F978-1-4615-2542-4_2#page-1

VIII. EFFECTS ON MALE FERTILITY

1. **Radiations and Male Fertility.** Kesari, K., Agarwal, A. and Henkel, R. *Reproductive Biology and Endocrinology* 16(118) (2018).
<https://rbej.biomedcentral.com/articles/10.1186/s12958-018-0431-1>
2. **The Effect of 2.45 GHz Non-Ionizing Radiation on the Structure and Ultrastructure of The Testis in Juvenile Rats.** *Histology and Histopathology* (2018).
<http://www.hh.um.es/Articles-Proofs/18-049-manuscript.pdf>
3. **Modulatory Effect of 900 MHz Radiation on Biochemical and Reproductive Parameters in Rats.** Narayanan, SN., et al. *Bratislava Medical Journal* 119(9):581-587 (2018). <https://www.ncbi.nlm.nih.gov/pubmed/30226070>
4. **Aloe Arborescens Juice Prevents EMF-Induced Oxidative Stress and Thus Protects from Pathophysiology in the Male Reproductive System In Vitro.** Solek, P., Majchrowics, L., and Koziorowski, M. *Environmental Research* 166:141-149 (2018).
<https://www.sciencedirect.com/science/article/pii/S0013935118301063?via=ihub>

5. **The Effects of Radiofrequency Electromagnetic Radiation on Sperm Function.** Houston, BJ., et al. *Reproduction* (2016).
<https://rep.bioscientifica.com/view/journals/rep/152/6/R263.xml>
6. **Male Fertility and its Association with Occupational and Mobile Phone Tower Hazards: An Analytical Study.** Al-Quzwini, O., et al. *Middle East Fertility Society Journal* (2016). <https://www.sciencedirect.com/science/article/pii/S1110569016300127>
7. **Sperm DNA Damage – The Effect of Stress and Everyday Life Factors.** Radwan, M., et al. *International Journal of Impotence Research* 28(4):148-154 (2016).
<https://www.ncbi.nlm.nih.gov/pubmed/27076112>
8. **Electromagnetic Radiation at 900 MHz Induces Sperm Apoptosis through bcl-2, bax and caspase-3 Signaling Pathways in Rats.** Liu, Q., et al. *Journal of Reproductive Health* 12:65 (2015). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4523914/>
9. **Habits of Cell Phone usage and Sperm Quality - Does It Warrant Attention?** Zilberlicht, A., et al. *Reproductive BioMedicine Online* 31(3):421-426 (2015).
<http://www.ncbi.nlm.nih.gov/pubmed/26206279>
10. **Extremely Low frequency Magnetic Fields Induce Spermatogenic Germ Cell Apoptosis: Possible Mechanism.** Lee, S., et al. *BioMed Research International* (2014).
<https://www.hindawi.com/journals/bmri/2014/567183/>
11. **In Vitro Effect of Cell Phone Radiation on Motility, DNA Fragmentation and Clusterin Gene Expression in Human Sperm.** Zalata, A., et al. *International Journal of Fertility and Sterility* 9(1):129-136 (2015).
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4410031/>
12. **Effect of Electromagnetic Field Exposure on the Reproductive System.** Gye, M. and Park, C. *Journal of Clinical and Experimental Reproductive Medicine* 39(1):1-19 (2012).
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3341445/>
13. **Effects of the Exposure of Mobile Phones on Male Reproduction: A Review of the Literature.** La Vignera, S., et al. *Journal of Andrology* 33(3):350-356 (2012).
<https://www.ncbi.nlm.nih.gov/pubmed/21799142>
14. **Use of Laptop Computers Connected to Internet Through Wi-Fi Decreases Human Sperm Motility and Increases Sperm DNA Fragmentation.** Avendano, C., et al. *Fertility and Sterility* 97(1):39-45 (2012). [https://www.fertstert.org/article/S0015-0282\(11\)02678-1/fulltext](https://www.fertstert.org/article/S0015-0282(11)02678-1/fulltext)

15. **Exposure to Magnetic fields and the Risk of Poor Sperm Quality.** Li, D.K, et al. *Journal of Reproductive Toxicology* 29(1):86-92 (2010).
<http://www.ncbi.nlm.nih.gov/pubmed/19910156>
16. **Mobile Phone Radiation Induces Reactive Oxygen Species Production and DNA Damage in Human Spermatozoa In Vitro.** De Luliis, G., et al. *PLoS ONE* 4(7) (2009).
<http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0006446>
17. **Radio Frequency Electromagnetic Radiation (Rf-EMR) from GSM Mobile Phones Induces Oxidative Stress and Reduces Sperm Motility in Rats.** Mailankot, M., et al. *Clinics (San Paulo)* 64(6):561-5 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19578660>
18. **Cell Phones: Modern Man's Nemesis?** Makker, K., et al. *Reproductive BioMedicine Online* 18(1):148-157 (2009). <http://www.ncbi.nlm.nih.gov/pubmed/19146782>
19. **Indicative SAR Levels Due to an Active Mobile Phone in a Front Trouser Pocket in Proximity to Common Metallic Objects.** Whittow, WG., et al. *IEEE Xplore* 149-152 (2008). <http://ieeexplore.ieee.org/xpl/articleDetails.jsp?reload=true&arnumber=4516888>
20. **Cell Phones and Male Infertility: Dissecting the Relationship.** Deepinder, F., et al. *Reproductive BioMedicine Online* 15(3):266-270 (2007).
<http://www.ncbi.nlm.nih.gov/pubmed/17854521>
21. **Evaluation of the Effect of Using Mobile Phones on Male Fertility.** Wdowiak, A., et al. *Annals of Agricultural and Medicine* 14(1):169-172 (2007).
<http://www.ncbi.nlm.nih.gov/pubmed/17655195>
22. **Effect of Cell Phone Usage on Semen Analysis in Men Attending Infertility Clinic: An Observational Study.** Agarwal, A., et al. *Fertility and Sterility* 89(1):124-128 (2008).
<http://www.ncbi.nlm.nih.gov/pubmed/17482179>

IX. ELECTROMAGNETIC SENSITIVITY

1. **Functional Brain MRI in Patients Complaining of Electrohypersensitivity After Long Term Exposure to Electromagnetic Fields.** Heuser, G. and Heuser, S. *Reviews on Environmental Health* 32(3):291-299 (2017).
<https://www.ncbi.nlm.nih.gov/pubmed/28678737>
2. **“Hot Nano Spots” as an Interpretation of So-Called Non-Thermal Biological Mobile Phone Effects.** Pftzner, H. *Journal of Electromagnetic Analysis and Applications* 8(3):62-69 (2016). <http://www.scirp.org/journal/PaperInformation.aspx?PaperID=65212>

3. **Analysis of the Genotoxic Effects of Mobile Phone Radiation Using Buccal Micronucleus Assay: A Comparative Evaluation.** Banerjee, S., et al. *Journal of Clinical and Diagnostic Research* 10(3):ZC82-ZC85 (2016).
<https://www.ncbi.nlm.nih.gov/pubmed/27135009>
4. **Tinnitus and Cell Phones: The Role of Electromagnetic Radiofrequency Radiation.** Medeiros, L. and Sanchez, T. *Brazilian Journal of Otorhinolaryngology* 82(1):97-104 (2016). <http://www.sciencedirect.com/science/article/pii/S1808869415001639>
5. **Microwave Frequency Electromagnetic Fields (EMFs) Produce Widespread Neuropsychiatric Effects Including Depression.** Pall, M. *Journal of Chemical Neuroanatomy* (2016).
<https://www.sciencedirect.com/science/article/pii/S0891061815000599?via%3Dihub>
6. **Subjective Symptoms Related to GSM Radiation from Mobile Phone Base Stations: a Cross-Sectional Study.** Gomez-Perretta, C., et al. *BMJ Open* 3.12 (2013).
<http://bmjopen.bmj.com/content/3/12/e003836.full>
7. **Green Communication- A Stipulation to Reduce Electromagnetic Hypersensitivity from Cellular Phones.** Kumar, N., et al. *Procedia Technology* 4:682-686 (2012).
<http://www.sciencedirect.com/science/article/pii/S2212017312003891>
8. **Electromagnetic Hypersensitivity: Fact or Fiction?** Genius, S. and Lipp, C. *Science of the Total Environment* 414(1):103-112 (2012).
<http://www.sciencedirect.com/science/article/pii/S0048969711012733>
9. **Neurobehavioral Effects Among Inhabitants Around Mobile Phone Base Stations.** Abdel-Rassoul, G., et al. *NeuroToxicology* 28(2):434-440 (2007).
<http://www.sciencedirect.com/science/article/pii/S0161813X06001835>
10. **Establishing the Health Risks of Exposure to Radiofrequency Fields Requires Multidisciplinary Research.** Hietanen, M. *Scandinavian Journal of Work, the Environment, and Health* 32(3):169-170 (2006).
http://www.sjweh.fi/show_abstract.php?abstract_id=994
11. **Hypersensitivity of Human Subjects to Environmental Electric and Magnetic Field Exposure: A Review of the Literature.** Levallois, P. *Environmental Health Perspectives* 110(4):613-8 (2002). <https://ehp.niehs.nih.gov/doi/pdf/10.1289/ehp.02110s4613>

12. **Electric Hypersensitivity and Neurophysiological Effects of Cellular Phones – Facts of Needless Anxiety.** Harma, M. *Scandinavian Journal of Work, the Environment and Health* 26(2):85-86 (2000). http://www.sjweh.fi/show_abstract.php?abstract_id=515
13. **Radiofrequency (RF) Sickness in the Lilienfeld Study: An Effect of Modulated Microwaves?** Liakouris, A. *Archives of Environmental Health* 236-238 (2018). <https://www.tandfonline.com/doi/abs/10.1080/00039899809605701?journalCode=vzeh20>

X. EFFECTS ON IMPLANTED MEDICAL DEVICES

1. **Ad Hoc Electromagnetic Compatibility Testing of Non-Implantable Medical Devices and Radio Frequency Identification.** Seidman S. and Guag, J. *Biomedical Engineering Online* 12:71 (2013). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3716957/>
2. **Electromagnetic Interference of Pacemakers.** Lakshmanadoss, U. Chinnachamy, P and Daubert, J. *Intech* 229-252 (2011). <http://cdn.intechopen.com/pdfs-wm/13783.pdf>
3. **Interference Between Mobile Phones and Pacemakers: A Look Inside.** Censi, F., et al. *Annali Dell'Istituto Superiore di Sanità* 43(3):254-259 (2007). <http://www.ncbi.nlm.nih.gov/pubmed/17938456>
4. **Electromagnetic Interference on Pacemakers.** Erdogan, O. *Indian Pacing and Electrophysiology Journal* 2(3):74-78 (2002). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1564060/>
5. **Electromagnetic Interference in Patients with Implanted Cardioverter-Defibrillators and Implantable Loop Recorders.** Sousa, M., et al. *Indian Pacing and Electrophysiology Journal* 2(3):79-84 (2002). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1564059/>
6. **Radiofrequency Interference with Medical Devices. A Technical Information Statement.** *IEEE Engineering in Medicine and Biology Magazine* 17(3):111-4 (1998). <http://www.ncbi.nlm.nih.gov/pubmed/9604711>
7. **Cellular Telephones and Pacemakers: Urgent Call or Wrong Number?** Ellenbogen, KA. and Wood, MA. *Journal of the American College of Cardiology* 27(6):1478-9 (1996). <http://www.ncbi.nlm.nih.gov/pubmed/8626961>

XI. 5G EFFECTS

1. **Towards 5G Communication Systems: Are There Health Implications?** Ciaula, AD. *International Journal of Hygiene and Environmental Health* 367-375 (2018). <https://www.sciencedirect.com/science/article/pii/S1438463917308143>
2. **5G Wireless Telecommunications Expansion: Public Health and Environmental Implications.** Russell, C.L. *Environmental Research* 165:484-495 (2018). <https://www.sciencedirect.com/science/article/pii/S0013935118300161>
3. **The Human Skin As A Sub-THz Receiver – Does 5G Pose a Danger To It or Not?** Betzalel, N., Ishai, P.B., and Feldman, Y. *Environmental Research* 163:208-216 (2018). <https://www.sciencedirect.com/science/article/pii/S0013935118300331?via%3Dihub>
4. **The Modeling of the Absorbance of Sun-THz Radiation by Human Skin.** Betzalel, N., Feldman, Y., and Ishai, P.B. *IEEE Transactions on Terahertz Science and Technology* 7(5):521-528 (2017). <https://ieeexplore.ieee.org/document/8016593/>
5. **Human Exposure to RF Fields in 5G Downlink.** Nasim, I. and Kim, S. *Georgia Southern University* (2018). <https://arxiv.org/pdf/1711.03683.pdf>

XII. MISCELLANEOUS ARTICLES

1. **Commentary on The Utility of The National Toxicology Program Study on Cell Phone Radiofrequency Radiation Data for Assessing Human Health Risks Despite Unfounded Criticisms Aimed at Minimizing the Findings of Adverse Health Effects.** Melnick, R. *Environmental Research* 168:1-6 (2019). <https://www.sciencedirect.com/science/article/pii/S0013935118304973?via%3Dihub>
2. **Genotoxic and Carcinogenic Effects of Non-Ionizing Electromagnetic Fields.** Kocaman, A., et al. *Environmental Research* 163:71-79 (2018). <https://www.sciencedirect.com/science/article/pii/S0013935118300343?via%3Dihub>
3. **Non-Ionizing EMF Hazard in the 21st Century.** Koh, W.J., and Moochhala, S.M. *IEEE* (2018). <https://ieeexplore.ieee.org/document/8393832/>
4. **Thermal and Non-Thermal Health Effects of Low Intensity Non-Ionizing Radiation: An International Perspective.** Belpomme, D., et al. *Environmental Pollution* 242(A):643-658 (2018). <https://www.sciencedirect.com/science/article/pii/S0269749118310157?via=ihub>

5. **Comparison of Radiofrequency Electromagnetic Field Exposure Levels in Different Everyday Microenvironments in an International Context.** Sagar, S., et al. *Environmental International* 114:297-306 (2018). <https://www.ncbi.nlm.nih.gov/pubmed/29529581>
6. **World Health Organization, Radiofrequency Radiation and Health – A Hard Nut to Crack (Review).** Hardell, L. *International Journal of Oncology* 51:405-413 (2017). <https://www.spandidos-publications.com/ijo/51/2/405>
7. **Radiation from Wireless Technology Elevates Blood Glucose and Body Temperature in 40-Year-Old Type 1 Diabetic Male.** Kleiber, C. *Electromagnetic Biology and Medicine* 36:3 259-264 (2017). <https://www.ncbi.nlm.nih.gov/pubmed/28524704>
8. **Cardiovascular Disease: Time to Identify Emerging Environmental Risk Factors.** Bandara, P. & Weller, S. *European Journal of Preventative Cardiology* (2017). http://journals.sagepub.com/doi/abs/10.1177/2047487317734898?url_ver=Z39.88-2003&rft_id=ori:rid:crossref.org&rft_dat=cr_pub%3dpubmed
9. **Effects of Exposure to 2100MHz GSM-like Radiofrequency Electromagnetic Field on Auditory System of Rats.** Celiker, M., et al. *Brazilian Journal of Otorhinolaryngology* (2017). <https://www.ncbi.nlm.nih.gov/pubmed/27865708?dopt=Abstract>
10. **An Investigation of the Effect of Extremely Low Frequency Pulsed Electromagnetic Fields on Human Electrocardiograms (ECGs).** Fang, Q., et al. *International Journal of Environmental Research and Public Health* 13(11) (2016). <https://www.ncbi.nlm.nih.gov/pubmed/27886102>
11. **Evaluation of the Protective Role of Vitamin C on the Metabolic and Enzymatic Activities of the Liver in the Male Rats After Exposure to 2.45 GHz of Wi-Fi Routers.** Shekoochi-Shooli, F., et al. *Journal of Biomedical Physics and Engineering* 6(3):157-164 (2016). <https://www.ncbi.nlm.nih.gov/pubmed/27853723?dopt=Abstract>
12. **Exposure of ELF-EMF and RF-EMF Increase the Rate of Glucose Transport and TCA Cycle in Budding Yeast.** Lin, K., et al. *Frontiers in Microbiology* (2016). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5005349/>
13. **Awareness Campaign Against Cell Phone Radiation Hazard: Case Study Oman.** Osmen, W. and Saar, A. *Procedia - Social and Behavioral Sciences* 205(9):381-385 (2015). <http://www.sciencedirect.com/science/article/pii/S1877042815050351>

14. **Electromagnetic Energy Radiated from Mobile Phone Alters Electrocardiographic Records of Patients with Ischemic Heart Disease.** Alhusseiny, AH., et al. *Annals of Medical and Health Science Research* 2(2):146-151 (2012).
<https://www.semanticscholar.org/paper/Electromagnetic-Energy-Radiated-from-Mobile-Phone-Alhusseiny-Al-Nimer/30272ec2956c9000f6598f739579c1464f2891aa>
15. **Effects of Radiofrequency Radiation on Human Ferritin: An *in vitro* Enzymun Assay.** Fattahi-asl, J., et al. *Journal of Medical Signals and Sensors* 2(4):235-240 (2012).
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3662108/>
16. **Apoptosis is Induced by Radiofrequency Fields through the Caspase-Independent Mitochondrial Pathway in Cortical Neurons.** Joubert, V., et al. *Radiation Research* 169(1):38-45 (2008). <https://www.ncbi.nlm.nih.gov/pubmed/18159956>
17. **Source of Funding and Results of Studies of Health Effects of Mobile Phone Use: Systematic Review of Experimental Studies.** Huss, A., et al. *Environmental Health Perspectives* 115(1):1-4 (2007). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1797826/>
18. **Epidemiology of Health Effects of Radiofrequency Exposure.** Ahlbom, A., et al. *Environmental Health Perspectives* 112(17):1741-1753 (2004).
<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1253668/>
19. **The Possible Role of Radiofrequency Radiation in the Development of Uveal Melanoma.** Stang, A., et al. *Journal of Epidemiology* 12(1):7-12 (2001).
<https://www.ncbi.nlm.nih.gov/pubmed/11138823>
20. **Biological Effects of Amplitude-Modulated Radiofrequency Radiation.** Juutilainen, J. and Seze R. *Scandinavian Journal of Work, the Environment and Health* 24(2):245-254 (1998). <https://www.ncbi.nlm.nih.gov/pubmed/9754855>

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Ref: Complainant-I-7-b

Exhibit:

“Smart Meters: A Health Risk?” 3/29/2019

Source:

Vision Times

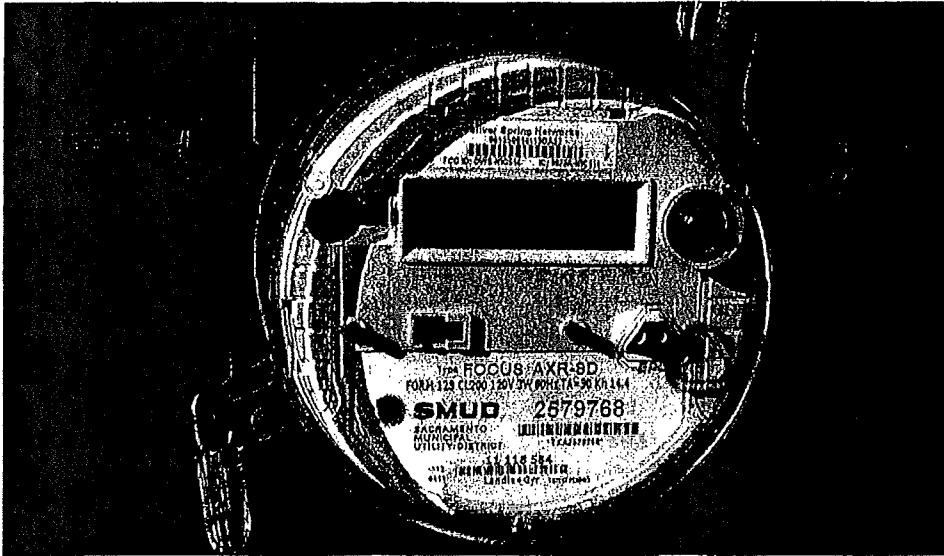
<http://www.visiontimes.com/2019/03/29/smart-meters-a-health-risk.html>

Relevancy:

Discussion of safety and privacy of smart meters.

Smart Meters: A Health Risk? - Vision Times

Smart Meters: A Health Risk?



More than 40 percent of American households have already had smart meters installed in their homes. (Image: Screenshot / YouTube)

More than 40 percent of American households have already had smart meters installed in their homes. These devices collect data on electricity consumption in a household and send it back to the central computer system of the utility provider. The meter uses RF transmissions to talk with the central system. Some people worry that the waves being emitted by the devices could be a serious health risk, even resulting in cancer.

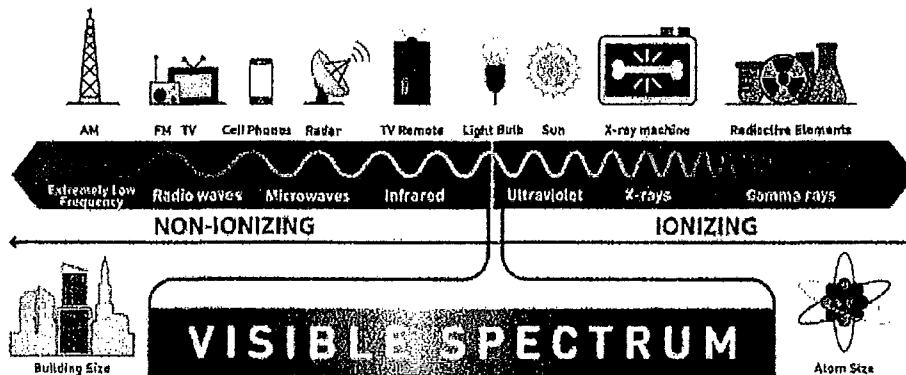
Health risks

In 2015, almost 220 scientists from 41 countries signed the International Scientists Appeal, warning that the frequencies emitted by cell phones, smart meters, and Wi-Fi are harmful to health. The Bioinitiative report has collected around 2,000 scientific papers that talk about the negative effects of electromagnetic fields. These were reviewed by 79 scientists. "Their

conclusions note that the continued rollout of wireless technologies jeopardizes global health and recommends stricter biologically based standards, lower exposure limits, and a more cautious, science-based approach," according to EMF Safety Network.

Utility companies argue that smart meter emissions are far lower than those from a satellite dish or cell phone, and state that they follow FCC's health guidelines regarding RF radiation. However, critics point out that the FCC's guidelines were set up in 1996 before the modern technological surge and that it is ineffective when gauging the dangers posed by current devices. The National Toxicology Program in Research Triangle Park has stated that RF radiation is carcinogenic. Even the World Health Organization (WHO) admits to it.

Electromagnetic Spectrum



Utility companies argue that smart meter emissions are far lower than those from a satellite dish or cell phone. (Image: Screenshot / YouTube)

Though smart meters emit low-level RF radiation, many people claim to have experienced headaches, migraines, sleep disturbances, balance problems, and dizziness after being exposed to them. But despite these health concerns, utility companies continue installing smart meters in American households. Some claim that since the meters are located outside the walls, any potential negative health impact from the meters will be "minimized."

"The outside wall of the house should provide some shielding, and, even if you had a bedroom, or a place where people spent a lot of time on the other side of

the wall, we're still talking about a good amount of distance behind the wall and away from the smart meter," Burton Ogle, a professor at the Environmental Health Program at Western Carolina University, said to WLOS.

Privacy and security concerns

The smart meters also come with their fair share of privacy and security issues. Being connected to a central computer system over the Internet, these meters are a target for hackers from hostile nations. A successful hack attempt could end up damaging the electric grid of the entire country, creating chaos.



Being connected to a central computer system over the Internet, these meters are a target for hackers who could end up damaging the electric grid of the entire country. (Image: Screenshot / YouTube)

"There is not a power meter or device on the grid that is protected from hacking — if not already infected with some kind of Trojan horse that can cause the grid to be shut down or completely annihilated," David Chalk, a cyber-security expert, said in a video.

When it comes to privacy, smart meters can provide information about a home's energy consumption pattern to utility companies and the government. However, this breach of privacy has been countered somewhat by a U.S. court judgment last year that declared that energy consumption data of a household is

protected under the Fourth Amendment.

By 2020, almost 80 percent of American households are expected to have smart meters installed. In the EU, approximately 200 million households will have these devices by the end of this decade.

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APPENDIX C

August 7, 2019 Order Granting Motion to Compel

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Kyle Toffey	:	
	:	
v.	:	C-2019-3006931
	:	
PPL Electric Utilities Corporation	:	

ORDER GRANTING MOTION TO COMPEL

On January 7, 2019, Kyle Toffey (Complainant) filed a Formal Complaint against PPL Electric Utilities Corporation (PPL or Respondent) seeking the removal of a smart meter at his service property in Wayne County, Pennsylvania. Complainant alleges: 1) that radiofrequency fields from smart meters have adverse health effects; 2) smart meters are fire hazards; and 3) there are data privacy issues with the meters.

The Complaint was served upon PPL on January 7, 2019. PPL served its Answer on January 28, 2019, denying the material averments in the Complaint. On February 1, 2019, a Call-In Telephone Hearing Notice was issued scheduling a hearing for August 6, 2019. On February 1, 2019, a Prehearing Order was issued directing Complainant to serve copies of statements, reports and any direct written testimony of any expert witnesses intended to be called at the hearing by May 30, 2019.

PPL served its Set I Interrogatories and Requests for Production of Documents (Set I) upon the Complainant on May 8, 2019. Objections were due on May 20, 2019. Complainant never served objections. Complainant served responses to Complainant Set I on May 23, 2019; however, he did not respond to Questions 2, 3, 4(b)-(e).

On July 12, 2019, PPL filed a Motion to Dismiss Objections and Compel Responses to Discovery. To date, Complainant never served responses to the Motion to Compel or complete responses to Questions 2, 3 and 4(b)-(e). The hearing in this matter is currently

rescheduled from August 6, 2019 to January 14, 2020, per PPL's unopposed first request for a continuation of hearing.

In its Motion to Compel, PPL seeks an order compelling full responses to Set I, Questions 2, 3, and 4(b)-(e). Specifically, PPL seeks the identification of all wireless phones, cellphones, microwave ovens, wireless routers, wi-fi networks, tablets, computers, Bluetooth speakers, wireless security systems, smart speakers, garage door openers, baby monitors, and walkie talkies in the service property. PPL requests the make, model and amount of cell phone usage and 12 months of phone bills showing usage for any cell phones used in the household.

Complainant objects on the grounds that the questions seeks information irrelevant to Complainant's claim that smart meters are unhealthy and generate "dirty electricity." Conversely, PPL claims its interrogatories regarding electronic devices used in the household and any medical records pertaining to health conditions allegedly caused or exacerbated by an AMI meter and information about whether those conditions were diagnosed by a medical professional may lead to admissible evidence. PPL also filed a Motion for Protective Order on July 12, 2019 to address Complainant's concerns regarding his privacy rights to medical information.

I find information requested in PPL Interrogatories 2, 3 and 4(b)-(e) may be admissible or lead to discovery of admissible evidence at the hearing and is discoverable under the broad terms of 52 Pa. Code Section 5.321. Whether there are devices emitting radio frequency fields in the service property and the frequency and duration of the usage of these devices, including cell phones, may be admissible and relevant at the hearing. Additionally, as Complainant alleges adverse health effects from an AMI meter, information pertaining to the medical records of individuals claiming deleterious effects from AMI meters are likely to lead to admissible evidence. Interrogatory No. 7 is a basic discovery request for exhibits is also permissible. A Protective Order will be entered concurrent with this Order so as to protect any information pertaining to cell phone records or medical records that Complainant wishes to identify as "confidential" in Complainant's responses.

THEREFORE,

IT IS ORDERED:

1. That PPL Utilities Corporation's Motion to Compel is granted.
2. That Complainant is directed to provide PPL Utilities Corporation with full responses to PPL Set I Interrogatories and Requests for Production of Documents Questions 2-3 consistent with the body of this Order **no later than September 9, 2019.**

Date: August 7, 2019

/s/
Elizabeth H. Barnes
Administrative Law Judge

C-2019-3006931 - KYLE TOFFEY v. PPL ELECTRIC UTILITIES CORPORATION

KYLE A TOFFEY OWNER/OPERATOR

PO BOX 99

HAMLIN PA 18427

570.500.5953

ACCEPTS E-SERVICE

DEVIN T RYAN ESQUIRE

17 NORTH 2ND STREET

12TH FLOOR

HARRISBURG PA 17101-1601

717.612.6052

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