

STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application and request)
of the DETROIT EDISON COMPANY seeking)
approval and authority to implement its) Case No U-17767
proposed Advanced Metering Infrastructure)
opt out program.)

QUALIFICATIONS & DIRECT TESTIMONY OF DAVID O. CARPENTER, M.D.

1 Q Do you swear that the testimony you are about to give is the truth, the whole
2 truth, and nothing but the truth?

3 A I do.

4 Q Can you please state your name, address and contact information?

5 A. David O. Carpenter, M.D. Institute for Health and the Environment, University
6 at Albany, Rensselaer, NY 12144. Phone: 518-525-2660.
7 email: dcarpenter@albany.edu

8 Q. Who are you testifying for in this proceeding?

9 A. Intervener David Sheldon.

10 Q. Could you tell us the nature of the medical work you do?

11 A. I am a public health physician. My area of specialization is environmental
12 health and disease prevention.

13 Q. Are you also associated with the Institute for Health and the Environment at
14 the University at Albany, State University of New York?

15 A. Yes.

1 Q. Could you tell us briefly what is the scope of research done there and what is
2 your own role at this institute?

3 A. I am the Director of the Institute for Health and the Environment, a
4 Collaborating Centre of the World Health Organization. The Institute promotes
5 interdisciplinary research on issues related to both health and the environment
6 in both domestic and international settings.

7 Q. Have you devoted a substantial part of your career to studying the effects of
8 low-level non ionizing radiation upon human beings?

9 A. Yes.

10 Q. Can you tell us what kind of devices in common use today emit low-level non
11 ionizing radiation?

12 A. Cell phones, baby monitors, wi-fi and smart meters would be the most
13 common examples. Smart meters are also sometimes called advanced meters
14 or AMI meters.

15 Q. Do you understand the purpose of this administrative law case and why we
16 have asked you to contribute your testimony?

17 A. Yes, I understand that this contested case was opened in response to an
18 application by DTE Electric for an increase in rates. As part of that application
19 DTE is seeking continued approval from the Michigan Public Service
20 Commission (MPSC) for rate recovery of costs occasioned by smart meter
21 installations and smart meter infrastructure. My understanding is that a
22 cost/benefit analysis is required in order for the Commission to continue to
23 allow smart meter costs to be passed on to DTE's customers.

1 Q. Will your testimony in this case go to the cost side of that analysis?

2 A. Yes.

3 Q. What kind of costs will you be addressing?

4 A. The costs imposed on customers through the electric rates they must pay I will
5 leave to others. I am concerned with the health costs imposed on customers in
6 consequence of the radio transmitters in smart meters and also in
7 consequence of the power quality issues, sometimes called "dirty electricity"
8 generated by the power supplies used in these meters.

9 What costs are those?

10 A. Diminished health for a minority of the population, probable diminished life
11 expectancy for the majority, probable genetic damage and all the unnecessary
12 out of pocket medical costs people will incur in order to cope with the harm.

13 Q. Do you have an opinion, based on your professional knowledge and
14 experience, as to whether the widespread deployment of radio transmitting
15 smart meters is a safe and prudent course of action, given the present state of
16 knowledge concerning the effects of such radio transmissions upon biological
17 processes?

18 A. I do. My belief is that such widespread deployment cannot be justified at this
19 time based on the peer-reviewed research we have. I would say that universal
20 deployment of such meters throughout our urban areas amount to an
21 experiment on the people living in those areas, an experiment without the
22 consent of the experimental subjects.

23 Q. Can you substantiate that point?

1 A. Yes. In 2012 I was asked to write my concerns about the health hazards of
2 smart meters. Forty five medical professionals and scientists, who together
3 have authored hundreds of peer-reviewed articles on the effects of
4 electromagnetic radiation, joined together with me in a statement expressing
5 our views on the effects of low level radio frequency and microwave radiation
6 in general and smart meter radiation in particular. That statement is attached
7 to my testimony as Exhibit One.

8 Q. And can you tell us briefly what conclusions were expressed?

9 A. While smart meters are too new for there to be human health studies
10 specifically on exposure from smart meters, there is a strong body of evidence
11 that demonstrates a variety of adverse human health effects, including cancer
12 and effects on brain and behavior, coming from exposure to radiofrequency
13 radiation like that generated by wireless smart meters.

14 Q. Is there something about this kind of radio frequency that is very different than
15 the kind of radio frequency the public has been exposed to for decades from
16 AM and FM radio stations?

17 A. Yes. The radio frequency used in smart meters is pulse modulated. There is a
18 body of scientific literature suggesting that pulse modulated RF is more
19 disruptive to the human body, and to other living things, than is a steady or
20 slowly varying RF field.

21 Q. To the best of your knowledge, what percentage of the general public could be
22 called "electro-sensitive", i.e. people who experience more or less immediate

1 symptoms when exposed to electromagnetic radiation, such as headaches,
2 mental confusion, rapid heartbeat and so on?

3 A. While the evidence is incomplete for several reasons, most reports indicate
4 that between 5 and 10% of the population show symptoms of electrical
5 hypersensitivity.

6 Q. Is it possible that electro-sensitive people are like the canary in the mine? Or,
7 more precisely, is it possible that the kind of electromagnetic fields that cause
8 electro-sensitive people to experience immediate symptoms of distress, are
9 also the kind of fields that are likely to cause long term illness to a much larger
10 group of individuals who do not experience immediate symptoms?

11 A. Yes, this is not only possible but likely.

12 Q. So would it be fair to say that from a public health standpoint, protecting the
13 most vulnerable among us might well be viewed not only as an act of
14 compassion toward them but also have the effect of protecting the majority of
15 the population from long term diseases like cancer or neurological diseases
16 like Alzheimer's Disease?

17 A. This is true.

18 Q. There is mention of "dirty electricity" in your Exhibit One. Can you tell us very
19 briefly what that is and why it might be a health issue?

20 A. Some reputable scientists, such as Dr. Sam Milham, have argued that the
21 switched mode power supplies in the new digital meters cause transients in
22 the kilohertz range that travel through home wiring and may be causing some
23 of the health effects we are seeing.

1 Q. The proposal of DTE Electric that is being considered here calls for customers
2 to be offered a non-transmitting smart meter as the opt-out alternative to the
3 fully functioning smart meter. DTE Electric has stated on the record in a
4 previous case, U-17053, that this will be the identical meter to the transmitting
5 smart meter, differing only in that the radio transmitter that would otherwise
6 send the readings to the utility will be turned off. Could this meter also be a
7 health problem and if so why?

8 A. It is my understanding that all smart meters have something called a “switched
9 mode power supply” in them to convert 120 volts ac to a lower dc voltage to
10 operate the electronics. There have been many reports from multiple parts of
11 the United States that these power supplies are causing low frequencies in the
12 kilohertz range to travel through the wiring of a home or business. This
13 phenomenon is called a power quality problem by engineers but is also
14 frequently called the “dirty electricity” problem by non engineers. There have
15 been many reports that this phenomenon produces adverse health effects
16 similar to those produced by the radio frequency transmitters. The traditional
17 type of electric meter, known as the “analog meter” or “electro-mechanical
18 meter” does not require a power supply and so does not generate power
19 quality problems.

20 Q. Would allowing individual customers to keep an analog meter be a safer
21 solution than the “non-transmitting meter” DTE Electric is currently offering its
22 opt-out customers.

23 A. Yes.

1 Q. Is there data on smart meters going back far enough to trace the long term
2 effects of such meters on people?

3 A. No, but until more data becomes available we have to make inferences based
4 on longer term data that we do have concerning use of cell phones and people
5 living near to radio transmission towers. These studies show that increased
6 radiofrequency exposure increases risk of cancer, and that the most
7 vulnerable parts of the population are children and teenagers.

8 Q. Have you had occasion to testify previously about such effects?

9 A. Yes, in January, 2012, I testified concerning the effects of WiFi radiation on
10 school children in the Oregon Public Schools. My legal testimony in that case
11 is attached here as Exhibit Two.

12 Q. Can you give us a very brief summation in a few sentences as to your
13 conclusions about the Wi-Fi study?

14 A. As with wireless smart meters, WiFi in schools exposes children constantly to
15 radiofrequency radiation. As with smart meters, the specific health effects
16 from exposure to WiFi have not been determined, but WiFi is radiofrequency
17 radiation. Because children are more vulnerable than adults to radiofrequency
18 radiation, as documented by studies from cell phone use and people living
19 near to radio transmission towers, it is unwise to use WiFi in schools when a
20 wired connection to the Internet does not increase exposure.

21 Q. In conclusion, would it be your opinion that allowing individual customers to
22 opt-out of having a "smart meter" on their home or business would be good
23 public policy?

1 A. Yes, if there must be widespread deployment of such devices at this time and
2 if wired smart meters are not a possible alternative.

3 Q. Does an opt-out plan really solve the exposure risk you have been describing
4 here and in your exhibits?

5 A. Not entirely. Not having a smart meter on one's own home will reduce the
6 potentially harmful exposure, but the customer opting out is still going to be
7 exposed to a whole blanket of electromagnetic radiation from the smart meters
8 of immediate neighbors and from all the transmitting and receiving devices
9 and repeaters the utility must install to allow all these meters to report their
10 data, as well as other sources of radiofrequency radiation.

11 Q. If a smarter grid is necessary, what would be the best way to implement the
12 necessary metering technology?

13 A. A system of wired smart meters using cable or fiber optics would not result in
14 any elevated RF exposure, and if combined with well filtered power supplies,
15 would still provide the utility with information about daily use without risk to
16 public health.

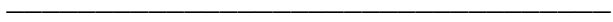
17 Q. Would it be fair to say from a public health standpoint, that if substantial fees
18 are imposed for opting out of smart meters, that far fewer individuals are likely
19 to opt-out, and that the result of that might well be that we have a greater
20 incidence of cancer and neurological diseases in the long run?

21 A. This is correct.

22 Q. Is there anything else you would like to add to your testimony today?

1 A. Exposure to radiofrequency radiation has been shown to result in human
2 disease, and we should take every step within reason to avoid increased
3 exposure. All the benefits of a smart grid technology could be obtained with
4 wired smart meters without increasing the risk of exposure and human
5 disease. But at the very least everyone should have the opportunity to opt-out
6 of having wireless smart meters placed on their home.

David O. Carpenter



David O. Carpenter, M.D.
Dated: 22 May 2015

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STATE OF MICHIGAN

BEFORE THE MICHIGAN PUBLIC SERVICE COMMISSION

In the matter of the application of)
DTE Electric Company for authority to)
raise its rates, amend its rate schedules)
and rules governing the distribution and)
supply of electric energy.)

Case No: U-17767

PROOF OF SERVICE

David Sheldon states that on May 22nd, 2015, he did serve, by email attachment, his Prefiled Testimony of David Carpenter, along with Proof of Service, upon the persons on the attached service list.

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CASE NO. U-17767
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