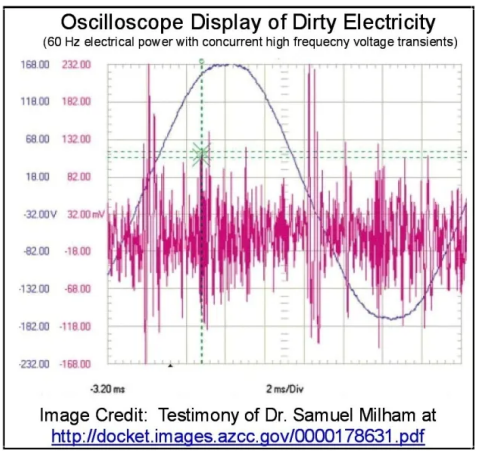
Dr. Samuel Milham: "Smart meters are a public health hazard."

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by K.T. Weaver, SkyVision Solutions

As part of direct testimony [1] filed in an electric utility rate case in Arizona, Samuel Milham, M.D., M.P.H. stated:

> "It is my professional opinion that smart meters are a public health hazard."



Dr. Milham (physician-epidemiologist) is the author of *Dirty Electricity* as well as over 100 peer-reviewed scientific publications. Dr. Milham's assertion is that adverse health effects can be caused by the "electrical pollution (dirty electricity) generated by the smart meter SMPS [switching mode power supply]."

Most people assume that when adverse health complaints are reported due to "smart" meters that the likely cause would be the intentional wireless RF emissions transmitted through air from the smart meter back to the utility. These reported health effects are certainly plausible based upon the evidence already presented at this website [2][3]. However, there are additional possible sources of electromagnetic field (EMF) exposure associated with smart meters, e.g., dirty electricity (DE).

As explained by Dr. Milham [1]:

> "Dirty electricity" or "dirty power" are terms coined by the electric utilities to describe the electrical pollution consisting of high frequency voltage transients and harmonics riding along on the 50 or 60 Hz wave form and contaminating the electricity delivered to users. ...
>
> The APS "smart" meters are electronic devices which replaced the old electromechanical analog meters used to measure electric power consumption for billing purposes. The smart meters have circuitry to measure power consumption and a microwave transmitter to send this information to the utility. The health effects of microwave exposures are well known. All transmitters, including the microwave transmitters in smart meters, operate on direct current (DC). The APS smart meters contain a switching mode power supply (SMPS) which changes the utility 60 Hz alternating current to DC. ...
>
> Because it is at the front end of a building's wiring, the dirty electricity from the smart meter's SMPS has a gateway into that building's wiring, and also into the earth via the house ground. The house

> wiring acts as an antenna and the fields capacitively couple to the body through the air within 6 to 8 feet of the house wiring or extension cords plugged into the outlets. …
>
> I believe that our evolutionary balance, developed over the millennia, has been severely disturbed and disrupted by man-made EMFs. I believe that man-made EMFs, especially dirty electricity, are chronic stressors and are responsible for many of the disease patterns of electrified populations. …
>
> It is my professional opinion that smart meters are a public health hazard.

The electric utility rate case referenced earlier in Arizona also contains testimony [4] submitted by a professional engineer to stipulate that "the Smart Meter causes a significant amount of noise on the 60 Hz signal." [4] Some of this electrical noise is due to the SMPS contained in the smart meter, but it is also due to radiofrequency transmissions being conducted along house wiring and re-radiated into the home [5][6].

Therefore, based upon what has been reported, there are at least three potential sources of EMF exposure associated with smart meters: (1) intentional RF emissions transmitted through the air from the smart meter transmitter(s) used to communicate with the utility and/or smart devices in the home; (2) dirty electricity associated with voltage transients and harmonics from the smart meter's switching mode power supply (SMPS); and (3) conduction of RF emissions from the smart meter's transmitters along the power line with re-radiation into the home [7].

The above information brings to mind the peer-reviewed article authored by Dr. Federica Lamech that was previously highlighted at this website, pertaining to "Self-reporting of symptom development from exposure to radiofrequency fields of wireless smart meters in victoria, australia: a case series." [8] In that article, it was concluded that "the vast majority of Victorian cases did not state that they had been sufferers of electromagnetic hypersensitivity syndrome (EHS) prior to exposure to the wireless meters, *which points to the possibility that smart meters may have unique characteristics that lower people's threshold for symptom development*." [emphasis added]

In the interest of ultimately determining why so many people report health problems associated with smart meters, I hypothesize that some of the reported effects could be related to the *multitude* of potential EMF-related threats posed by these devices as compared with most other common wireless devices.

It should be acknowledged, however, that the subject of "dirty electricity," for example, remains controversial within the scientific community. A 2016 systematic review pertaining to "high-frequency voltage transients" concluded the following [9]:

> "With respect to health effects, it can be summarized that aside from the scientific evidence describing associations between RF radiation and health outcomes, the available evidence on human health effects of DE is based primarily on weak and flawed epidemiological evidence. More specifically, inference is mainly based on case studies, which only have a role to play in hypothesis generation and are extremely susceptible to placebo and nocebo effects, supplemented with ecological studies describing unlikely causal inferences."
>
> "Therefore, it can be concluded that despite the fact that the concept of DE is described in a number of books and references easily found on the internet, the inferences made regarding its association

> with increased risks on health and wellbeing are not based on scientific data of acceptable standard for such claims. This does of course not automatically imply that the concept itself is meaningless, but additional confirmatory studies will need to be conducted (and funded) to investigate whether DE could be a causal agent."

So as is the case with many of today's significant health issues that potentially affect us all, and certainly from an industry perspective, "additional confirmatory studies will need to be conducted (and funded) to investigate" potential causal agents for reported health problems … as the suspect technologies continue to be deployed at a rapid pace. From the perspective of Dr. Samuel Milham, there is little doubt on the degree of harm being caused or what is causing it.

References

[1] Pre-Filed Testimony by Samuel Milham, M.D., M.P.H on behalf of Warren Woodward, April 3, 2017; available at http://docket.images.azcc.gov/0000178631.pdf

[2] "Radiofrequency (RF) Radiation Power Density Levels for Smart Meters, Various Biological Effects, and Exposure Guidelines," SkyVision Solutions, at https://smartgridawareness.org/rf-health-effects/rpd-comparison-values/

[3] "Health Risks Associated with Smart Meter Wireless Emissions," SkyVision Solutions Blog Article, October 2016, at https://smartgridawareness.org/2016/10/02/health-risks-associated-with-smart-meter-wireless-emissions/

[4] Pre-Filed Testimony by Erik S. Anderson, P.E., C.F.E.I. on behalf of Warren Woodward, April 3, 2017; available at http://docket.images.azcc.gov/0000178630.pdf

[5] "Study of the Effects of Smart Meter RF Transmissions on GFCI Outlets," by Simon T. Donahue, et.al., published in the *IEEE Transactions on Electromagnetic Compatibility* (volume: 56, issue: 6, Dec. 2014); available at http://ieeexplore.ieee.org/document/6899604/

[6] Based upon a "Report on Examination of Selected Sources of EMF at Selected Residences in Hastings-on-Hudson" by Isotrope Wireless, dated November 23, 2013: "There was a substantial conducted 915 MHz component on the power line." Report available at https://smartgridawareness.org/wp-content/uploads/2014/04/report-on-examination-of-selected-sources-of-emf-at-selected-residences.pdf.

[7] Most smart meters deployed in North America and Australia are considered *wireless* devices as they communicate wirelessly with the utility company. Other smart meters are sometimes deployed, particularly in Europe, that use the power lines themselves to communicate information back and forth between the customer and the utility, the so-called power-line communication (or carrier) (PLC) smart meters. These types of meters create an additional source of "dirty electricity."

[8] "Published Article: Symptom Development from Exposure to Wireless Smart Meters," SkyVision Solutions Blog Article, December 2014, at https://smartgridawareness.org/2014/12/07/symptom-development-from-smart-meter-rf-exposure/

[9] “Systematic Review of the Exposure Assessment and Epidemiology of High-Frequency Voltage Transients,” by Frank de Vocht and Robert G. Olsen, *Front. Public Health*, 29 March 2016; available at https://doi.org/10.3389/fpubh.2016.00052. Note on Funding: The work for this paper was supported by a grant from the Electrical Power Research Institute (EPRI).

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Raising public awareness and finding solutions for smart grid issues related to invasions of privacy, data security, cyber threats, health and societal impacts, as well as hazards related to radiofrequency (RF) radiation emissions from all wireless devices, including smart meters.
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