

## The Health Argument for Replacing Wireless Smart Meters with a Safe Metering Technology in Maryland

The electric power companies of Maryland made a dreadful mistake when they elected to install Wireless Smart Meters to measure electrical power. Wherever these meters are installed, they threaten the health of all residents in the community, violate their privacy, increase the cyber vulnerability of the supply of electricity to their homes, decrease their personal security and safety, and threaten property values in the community. And Wireless Smart Meters do all of this without any persuasive evidence of any financial benefit to the customers.

All of these consequences are important for Marylanders; but the health threat is particularly tragic. If you care about the health of Marylanders, including the health of your own family, and about the cost of health care in Maryland, do consider the information presented here and the many supporting references cited. This document describes the health problems that the biomedical research community has found caused by exposure to the type of radiation -- radiofrequency radiation (at microwave frequencies) -- emitted by wireless Smart Meters. ***These researchers work to protect the rest of us from harm, but we must be wise enough to listen. We, in Maryland, are late in listening.***

### Who am I?

I am a retired U.S. Government scientist (Ph.D., Applied Physics, Harvard University, 1975). During my Government career, I worked for the Executive Office of the President, the National Science Foundation, and the National Institute of Standards and Technology. For those organizations, respectively, I addressed Federal R&D program evaluation, energy policy research, and measurement development in support of the electronics and electrical-equipment industries and the biomedical research community. I currently interact with other scientists and with doctors around the nation on the impact of the environment – including the radiofrequency environment – on human health.

### What is the health problem with wireless Smart Meters?

Wireless Smart Meters transmit radiofrequency (RF) radiation to transfer data about electric power consumption back to the electric power companies, to communicate with other Wireless Smart Meters, and, soon, to communicate with Wireless Smart Appliances inside each home. The installation of these Wireless Smart Meters was undertaken in spite of the fact that the international biomedical research community, and medical practitioners, are increasingly finding that a wide variety of biological effects are being caused by RF radiation at levels much lower than earlier understood, and well below the levels that Wireless Smart Meters produce.

The RF radiation from Wireless Smart Meters is particularly threatening to health because that radiation is so persistent and so powerful. California court documents, describing the same Wireless Smart Meters used here in Maryland, indicate that each of these meters issues its pulses of RF radiation, on average 10,000 times per day, and up to a maximum 190,000 times per day, 24/7, forever. Further, the power level of each pulse is about 1000 milliwatts, placing Wireless Smart Meters among the most powerful RF radiators likely to be present in a residential environment.

References:

[http://emfsafetynetwork.org/wp-content/uploads/2011/11/PGERFDataOpt-outalternatives\\_11-1-11-3pm.pdf](http://emfsafetynetwork.org/wp-content/uploads/2011/11/PGERFDataOpt-outalternatives_11-1-11-3pm.pdf)  
<http://stopsmartmeters.org/wp-content/uploads/2012/01/OWS-NIC514-FCC-specifications.pdf>

## Why don't Federal regulations protect the public from such high levels of RF radiation?

The Federal Communications Commission (FCC) is responsible for the regulations that set the Maximum Permitted Exposure (MPE) limits for RF radiation. Unfortunately, the current regulations are based primarily on outdated 1980s thinking, when only the heating effects of RF radiation on the body were considered. Since then, the biomedical research community has demonstrated, in hundreds of published studies, that there are an enormous number of biological effects of concern, entirely aside from heating. And the number of discovered effects continues to grow.

In short, current FCC regulations are entirely out of date and are too permissive to protect the public from harm. This problem has been recognized in legislation proposed in the U.S. House of Representatives (H.R. 6358). But, even if that legislation becomes law, it will be years before more protective regulations are developed and issued. In the meantime, each of the states in the USA is on its own to protect its residents. ***Thus, the question is: Will Maryland act to protect its residents?***

References:

Summary of H.R. 6358: (<http://marylandsmartmeterawareness.org/smart-meter-news/ask-your-congressional-rep-to-co-sponsor-h-r-6358>).  
Full copy of H.R. 6358: ([http://thomas.loc.gov/home/gpoxmlc112/h6358\\_1h.xml](http://thomas.loc.gov/home/gpoxmlc112/h6358_1h.xml)).

## What biological effects does exposure to RF radiation cause?

Some of the biological effects of exposure to RF radiation can be readily sensed (the "symptoms"). Other biological effects cannot be readily sensed, at least not until an advanced state of harm has been reached. Unfortunately, you can be harmed by the latter even when you are free of the "symptoms". ***That is, you can be harmed with no warning.***

(1) Biological effects of RF radiation from Wireless Smart Meters that can be sensed (the "symptoms") include these:

- pressure in head
- difficulty concentrating
- ringing, buzzing/tinnitus in the ears
- insomnia
- headaches
- heart racing, arrhythmia
- memory problems
- agitation
- dizziness
- tingling, burning skin
- fatigue

involuntary muscle contractions  
eye/vision problems  
numbness

Reference:

Pre-Filed Testimony of Richard Conrad, Ph.D., Appendices 2 and 3  
(<http://www.mainecoalitiontostopsmartmeters.org/wp-content/uploads/2013/01/Exhibit-9-Conrad-Web.pdf>).

(2) Biological effects of RF radiation that cannot be readily sensed (except for some on the first line below), until they have reached an advanced state of harm, include these:

sleep, neuron firing rate, EEG, memory, learning, and behavior difficulties  
stress proteins, heat shock proteins, and disrupted immune function  
reproduction and fertility effects  
brain tumors and blood-brain barrier penetration  
cancer (other than brain) and cell proliferation  
oxidative damage, reactive oxygen species and DNA damage, and DNA repair failure  
disrupted calcium metabolism  
cardiac, heart muscle, blood pressure, and vascular effects

Reference:

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors, BioInitiative Report: A Rationale for Biologically-based Public Exposure Standards for Electromagnetic Radiation, December 31, 2012 (<http://www.bioinitiative.org>). See the RF Color Charts.

## **Where can you find analyses of the research literature documenting the biological effects of RF radiation?**

The published literature of the international biomedical research community on the adverse effects of RF radiation is so vast that it would be difficult to read it all. But three very wide ranging reviews of this literature have made the findings more accessible:

(1) The most massive review is the 1479-page BioInitiative 2012 Report, published in December 2012, which considered about **1800** biomedical research publications issued in the last five years. The BioInitiative 2012 Report was prepared by an international body of 29 experts, heavy in Ph.D.s and M.D.s, from 10 countries, including the USA which contributed the largest contingent of experts (10).

Reference:

BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors, BioInitiative Report: A Rationale for Biologically-based Public Exposure Standards for Electromagnetic Radiation, December 31, 2012 (<http://www.bioinitiative.org>).

(2) A group of six doctors in Oregon, led by Paul Dart, M.D., published, in June 2013, their own 74-page review of **279** biomedical research publications. This review makes the health case against the

installation of Wireless Smart Meters, explicitly. The review recommends that levels of RF radiation must be lowered to protect public health, not raised by the installation of Wireless Smart Meters. This review is posted on the website of the Federal Communications Commission, at the link entitled "Health Effects of RF - Research Review (97)".

Reference:

Biological and Health Effects of Microwave Radio Frequency Transmissions, A Review of the Research Literature, A Report to the Staff and Directors of the Eugene Water and Electric Board, June 4, 2013 (<http://apps.fcc.gov/ecfs/comment/view?id=6017465430>).

(3) Michael Bevington, in 2013, published a book that summarizes the findings of **1828** biomedical research publications. The book describes the symptoms caused by exposure to electromagnetic radiation, the many diseases associated with such exposure, and the relative risk levels associated with specific sources of electromagnetic radiation. Wireless Smart Meters are in the highest of those risk categories.

Reference:

Michael Bevington, Electromagnetic Sensitivity and Electromagnetic Hypersensitivity: A Summary, 2013 (<http://www.es-uk.info>).

### **Are some groups of people at especially high risk of harm from RF radiation?**

Yes. The above literature reviews indicate that some groups of individuals are at especially high risk of harm from exposure to RF radiation: pregnant women and their unborn children, very young children, teenagers, men of reproductive age, seniors, and anyone with a chronic health condition.

### **What is the latest disquieting information about the biological effects of RF radiation?**

As the research community's investigations proceed, additional biological effects are being found and others are coming under investigation. One of the most important coming under investigation now is the plausibility of a link between RF radiation and autism. A link is suspected because the biological effects known to be caused by RF radiation are remarkably similar to the biological anomalies exhibited by autistic children.

That link has not yet been scientifically established. But if that link does prove true, and thus that RF radiation is found to be one of the environmental stressors contributing to autism, then we may, at last, have an explanation as to why the incidence of autism is growing as quickly as the use of wireless devices themselves. Autism now affects 1 in about 50 children, mostly boys.

Reference:

Martha R. Herbert, Cindy Sage, Autism and EMF? Plausibility of a pathophysiological link part I and part II, Pathophysiology, Volume 20(3), pages 191-209 and 211-34, June 2013 (<http://www.pathophysiologyjournal.com/article/S0928-4680%2813%2900037-0/abstract>).

## What are medical associations saying about RF radiation from Wireless Smart Meters and other wireless devices?

The American Academy of Environmental Medicine, which trains medical doctors in preparation for the tests required for Board Certification in Environmental Medicine, recommends:

*"Avoidance of smart meter EMF/RF emissions based on health considerations, including the option to maintain analog meters."*

*"A moratorium on smart meters and implementation of safer technology."*

Reference:

AAEM, "Smart Meter Case Series", October 23, 2013  
(<http://marylandsmartmeterawareness.org/wp-content/uploads/2014/02/AAEM-Smart-Meters.pdf>).

The American Academy of Environmental Medicine also states:

*"The AAEM strongly supports the use of wired Internet connections, thereby encouraging prudent minimization of exposure to RF such as from WiFi, cellular and mobile phones and towers, and "smart meters."*

*"The peer reviewed, scientific literature demonstrates the correlation between RF exposure and neurological, cardiac, and pulmonary disease as well as reproductive and developmental disorders, immune dysfunction, cancer and other health conditions. The evidence is irrefutable."*

Reference:

AAEM, "Wireless Radiofrequency Radiation in Schools", November 14, 2013  
(<http://aaemonline.org/docs/WiredSchools.pdf>).

The American Academy of Pediatrics (AAP), whose 60,000 doctors care for our children, has supported the development of more restrictive standards for RF exposure that would better protect the public:

*"It is essential that any new standards for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded through their lifetimes."*

Reference:

Letter from the AAP to the Honorable Dennis Kucinich, U.S. House of Representatives, December 12, 2012 (<http://www.scribd.com/doc/118348085/AAP-Supports-Child-Cell-Phone-Protection>).

## How are other states and communities responding to Wireless Smart Meters?

In California, which got Wireless Smart Meters early (2010), 57 towns, cities, counties, and other jurisdictions have opposed the mandatory installation of Wireless Smart Meters. Of these jurisdictions, 15 have banned the installation of Wireless Smart Meters altogether.

Reference:

<http://stopsmartmeters.org/how-you-can-stop-smart-meters/sample-letter-to-local-government/ca-local-governments-on-board/>

The Attorneys General of three states have opposed Wireless Smart Meters because they find that the costs outweigh any claimed financial benefits to the customers.

The Attorney General of Illinois, Lisa Madigan, indicates the following:

*"The utilities want to experiment with expensive and unproven smart grid technology, yet all the risk for this experiment will lie with consumers."*

*"Consumers don't need to be forced to pay billions for so-called smart technology to know how to reduce their utility bills. We know to turn down the heat or air conditioning and shut off the lights. The utilities have shown no evidence of billions of dollars in benefits to consumers from these new meters, but they have shown they know how to profit."*

*I think the only real question is: How dumb do they think we are?"*

Reference:

<http://www.lisamadigan.org/Newsroom/lisainthenews/item/2011-06-lisa-madigan-opinion-editorial-comed-experiment-too>

The Attorney General of Connecticut, George Jepsen, concluded the following:

*"Connecticut Light & Power Co.'s plan to replace existing electric meters with advanced technology [that is, Wireless Smart Meters] would be very expensive and would not save enough electricity for its 1.2 million customers to justify the expense, Attorney General George Jepsen said Tuesday."*

*' "The pilot results showed no beneficial impact on total energy usage," Jepsen said. "And, the savings that were seen in the pilot were limited to certain types of customers and would be far outweighed by the cost of installing the new meter systems," he said.'*

Reference:

[http://www.ct.gov/ag/lib/ag/press\\_releases/2011/020811clpmeters.pdf](http://www.ct.gov/ag/lib/ag/press_releases/2011/020811clpmeters.pdf)

The Attorney General of Michigan, Bill Schuette, stated the following:

*“A net economic benefit to electric utility ratepayers from Detroit Edison’s and Consumers smart meter programs has yet to be established. In the absence of such demonstrated benefit, the Attorney General has opposed, and will oppose any Commission action that unjustly and unreasonably imposes the costs of such programs upon ratepayers.”*

Reference:

<http://efile.mpsc.state.mi.us/efile/docs/17000/0408.pdf>

Throughout the USA, 33 of the 50 states now have Wireless Smart Meter opposition groups, providing strong evidence of growing public awareness and concern.

Reference:

<http://www.takebackyourpower.net/directory/us/>

## **Left unattended, will the health problem posed by Wireless Smart Meters get better or worse?**

The health problem will get much worse and quickly. Wireless Smart Appliances, such as smart electric stoves, and smart electric clothes dryers, are in the offing. They, too, will contain wireless RF transmitters and receivers. These Wireless Smart Appliances are designed to use RF radiation to communicate with Wireless Smart Meters so that the electric power company will know what each Wireless Smart Appliance in every home is doing all the time. Thus, not only will the Wireless Smart Meters be sending RF radiation into the home to probe for data from the Wireless Smart Appliances, but also the Wireless Smart Appliances will be responding by sending their own RF radiation throughout the home. The result will be a steadily increasing level of RF radiation in the home, further increasing the health risk.

## **Why is there a special urgency to this problem?**

While some of the biological effects of RF exposure can be reversed by reducing exposure, a quick examination of the lists of biological effects above will indicate that many of these effects are not reversible. For example, once you have cancer, reducing RF exposure may not be sufficient to enable recovery, even though it may help with recovery. Simply stated, the longer that RF exposure at high levels is permitted to persist, the more difficult it will become to undo the harm. Many Marylanders have already been exposed to the RF radiation from Wireless Smart Meters for more than one year.

## **Why are Wireless Smart Meters a community issue, not just an individual issue?**

The RF radiation from each Wireless Smart Meter does not stop at the boundaries of the property on which that Wireless Smart Meter has been installed. Also, the radiation readily penetrates ordinary home-construction materials. If this were not true, Wireless Smart Meters would be of no use to the electric power companies for returning consumption data to them or for communicating with forthcoming Wireless Smart Appliances inside the home.

In fact, *every resident in a community is irradiated by every Wireless Smart Meter in that community, just to varying degrees.* Each Wireless Smart Meter near to a given resident produces more radiation in his home than each Wireless Smart Meter farther away. But there are so many more Wireless Smart Meters that are farther away that, together, they count, too. For example, in my community of Montgomery Village, MD, there are more than 14,000 Wireless Smart Meters installed on our homes. Together, they issue an average of 140 million pulses of RF radiation every day, up to a maximum of 2.7 billion pulses per day. There is now ***no place in our community*** where a resident can go where he is not *near to many Wireless Smart Meters* and within reach of so many more Wireless Smart Meters that are farther away.

The implication is that no resident can solve his radiation problem just by having his own Wireless Smart Meter replaced with a safe meter, even though his own Wireless Smart Meter is the single greatest contributor to the radiation level in parts of his home. Rather, all of his neighbors must have their Wireless Smart Meters replaced, too. This fact is already stressing relationships among neighbors who have varying degrees of understanding of the health threat. If Wireless Smart Meters are allowed to continue in use, this stress can tear communities apart.

In short, once Wireless Smart Meters have been installed on your home and in your community, your home is no longer your castle. Rather, your home is now your electric power company's castle.

## **How can the Maryland General Assembly help through legislation?**

### **(1) If you want to provide SOME help to SOME Maryland residents, then at least:**

Write into law a permanent permission for individual home owners to opt out of having a Wireless Smart Meter, and without undue financial penalty. No one should have a Wireless Smart Meter imposed upon him. Nor should anyone have to pay a penalty to protect the health of his family and his community. Permit Maryland residents to use instead a safe "traditional analog mechanical meter with no wireless communications capability". This type of meter does not emit RF radiation and is the safest of the choices available. This type of meter also has a long history of reliability and accuracy.

### **(2) If you want to provide SOME help but to MORE Maryland residents:**

Extend to all renters, including those renting office space, the right to have their Wireless Smart Meters replaced with a safe "traditional analog mechanical meter with no wireless communications capability". Otherwise, their health will remain at the mercy of their landlords, who may not understand, or care, about the health risks to their renters.

### **(3) If you want to SOLVE the health problem for ALL Maryland residents equally:**

Pursue a moratorium on the further installation of Wireless Smart Meters throughout Maryland. Then pursue a rollback of the installation of all Wireless Smart Meters throughout the state. That is the ***only way*** to protect ***all*** of the residents of the state, because each resident is irradiated not only by his own Wireless Smart Meter but also by the Wireless Smart Meters of his neighbors.

If I can be of assistance to you or your staff in assessing the documentation justifying such steps, please do not hesitate to contact me.



I urge you to look deeply into this major challenge to the health of Marylanders. Only you can prevent the dreadful mistake made by the electric power companies from becoming a health disaster for all Maryland residents. Please take protective action now.

Thank you for your attention.

Regards,

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