

Small cells, 5G & IoT: Environmental and Public Health Hazards

Catherine Kleiber

Independent Researcher

Author and Webmaster of www.ElectricalPollution.com

Please turn your cellphone and other wireless devices OFF

Industry is inherently self-interested

All industries, including the technology industry, only exist to sell their product

Historical examples of industries causing serious harm for financial gain:

- The tobacco industry
- The lead paint industry
- The asbestos industry
- The radium industry

Now, the technology and telecommunications industries!

What are small cells, 5G, and IoT?

- Small cells are closely spaced cell transmitters that are short in stature.
- 5G frequencies - 24GHz and above (WiFi is 2.4 GHz, the same frequency as is used by your microwave oven) - A recent study by New York University found that a 73 GHz 5G signal can travel 6 miles on a clear day.
- According to Google the Internet of Things (IoT) is “the interconnection via the Internet of computing devices embedded in everyday objects, enabling them to send and receive data.”

Small cells, 5G, and IoT Guzzle Energy

Up to 90% of this consumption is attributable to wireless access network technologies, data centres account for only 9%.”

From - “THE POWER OF WIRELESS CLOUD: An analysis of the energy consumption of wireless cloud” Center for Energy Efficient Telecommunication. Bell Labs and the University of Melbourne

“Wireless technologies will continue to consume at least 10 times more power than wired technologies... [passive optical networks e.g. fiber optics] will continue to be the most energy-efficient access technology.”

Jayant Baliga (et al.), University of Melbourne and National ICT Australia *Energy Consumption in Wired and Wireless Access Networks* IEEE Communications Magazine • June 2011

IoT will require additional energy expenditure.

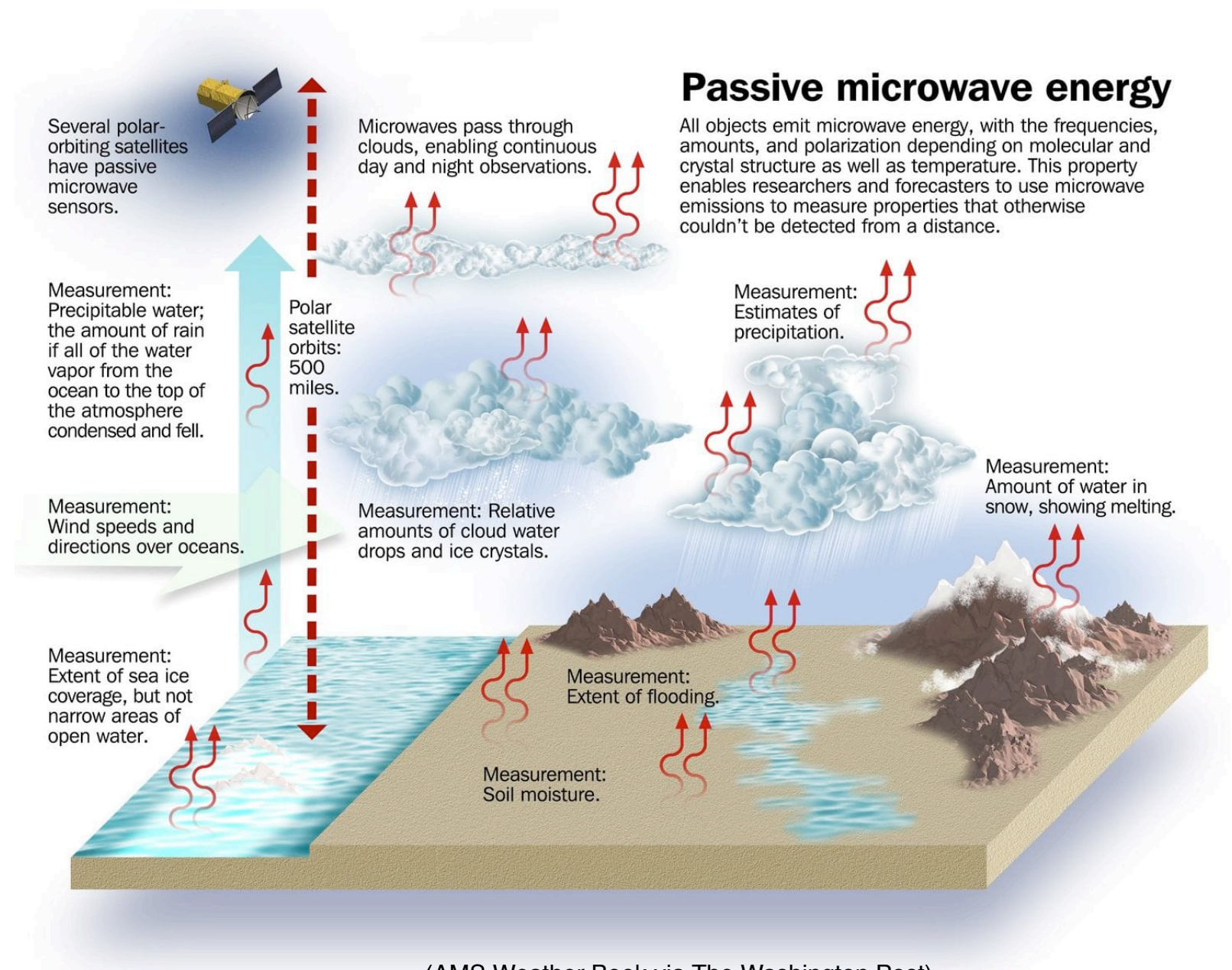
5G systems require a fiber optic backbone.

5G Endangers NOAA's Ability to Forecast Weather

“NOAA’s microwave sounders operate at a frequency of 23.6 to 24 GHz, which is close to the frequency that the FCC auctioned off.”

Washington Post

Water vapor maps play an essential roll in NOAA’s weather forecasting. Accuracy could markedly decrease if 5G interference is too great.



(AMS Weather Book via The Washington Post)

Limitations on local control of small cells/5G installation?

- The 1996 Telecommunications Act
- FCC Order to preempt local control and force 5G on communities - overturned in court
- FCC OTARD Docket - Would allow small cell transmitters to be installed on private property to be exempt from local control
- Wisconsin 5G legislation - passed and signed 2019
- Wisconsin 2013 Act 20

What can be done locally about 5G?

Lobby Wisconsin Legislators to repeal the Wisconsin 5G Bill and Wisconsin 2013 Act 20

Without these bills, communities have choices about installation of 5G

POLICY REPORT: Small Cell Facilities in Boulder, CO -- Planning Ahead for an Evolving Legal Regime

Communities take action to:

Promote responsible energy policy

Protect property values

Preserve NOAA's Capacity for Accurate Weather Forecasts

Why do we need small cells, 5G, and IoT?

- The short answer is: **We Don't!**
- Tech industry wants the data small cells, 5G, and IoT will create.
- They need you to crave instant high speed connectivity anywhere, anytime at any cost.
- Driverless cars
- Telemedicine

Screen Technology Addictive by Design and Nature

- **Deliberately addictive app and game design**
- Physiological effects of “fight or flight” mode - Shifts blood flow away from the cortex and frontal lobe - also seen in addiction.
- Reduces the brains ability to make decisions, organize, pay attention, control impulses, complete tasks, and regulate emotions.
- Chronic stress leads to elevated cortisol which can cause carbohydrate cravings, obesity, high blood pressure, diabetes, metabolic syndrome, and hormone imbalance.
- If adrenal fatigue sets in, salt cravings and poor appetite can follow.

Screen Technology Contraindicated For Children

Studies show — children learn better reading books and writing on paper.

Read up on Electronic Screen Syndrome and screen addiction:

Glow Kids by Nicholas Kardaras

**Reset Your Child's Brain by Dr. Victoria
Dunckley**

Take what you learn and speak to friends, relatives, school officials, and legislators at all levels. Urge them also to read these books.

All screen devices emit RFI

RFI = Radiofrequency Interference

Most also emit radiofrequency radiation in the microwave range for purposes of communication.

Federal Communications Commission (FCC) exposure guidelines for intentional radiators are thermally-based and are only designed to protect a large man from thermal harm during a 6 minute exposure.

The FCC is considered a “captured agency.”



FCC classifications for RF emitters

- ***Incidental Radiators*** include electrical motors, dimmer switches, wall warts/transformers. They radiate RF in the course of operation.
- ***Unintentional Radiators*** include devices that generate RF energy for internal use, but which are not intended to emit it, like computers and other electronics and some high efficiency lights. However, often substantial RF does radiate. They also often produce “dirty” electricity.
- ***Unlicensed Intentional Radiators, Industrial, Scientific, and Medical (ISM) Radiators, and Licensed Radiators*** all radiate RF intentionally.

FDA Regulatory Negligence Endangering Public Health

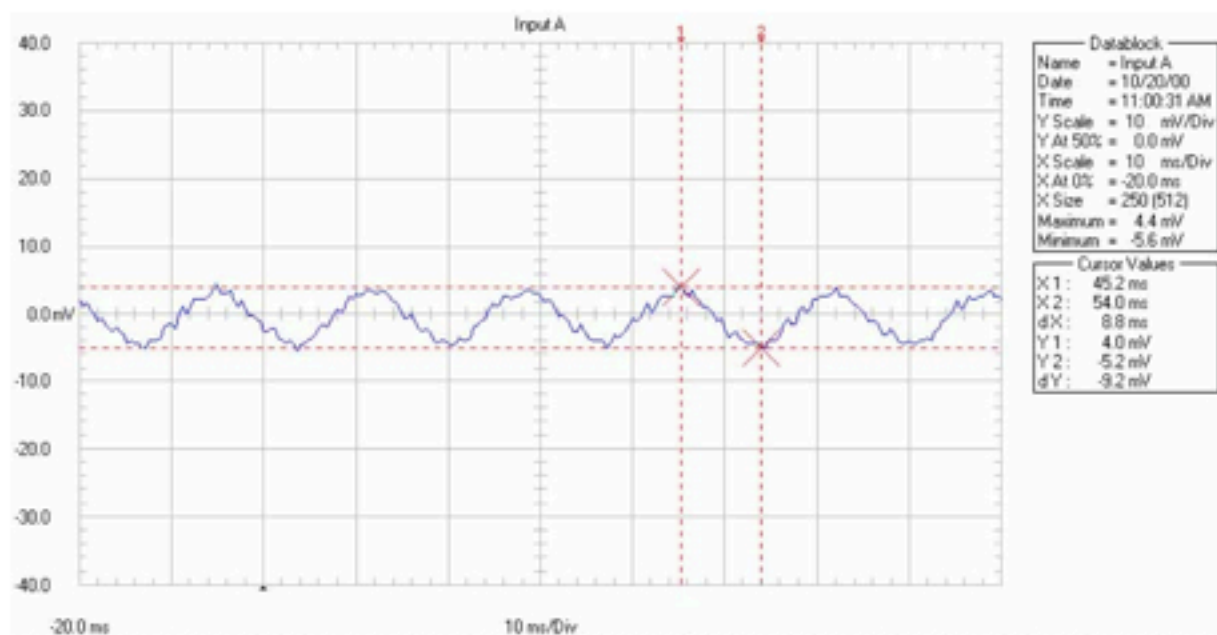
- **The U.S. Food and Drug Administration (FDA)** has a clear obligation to regulate “**electronic product radiation**” in a manner that is “**designed to protect the public health and safety from electronic product radiation**”.
- **The Federal Communications Commission (FCC)** also regulates electronic product radiation and states “Almost all electronic-electrical products (devices) are capable of emitting radio frequency energy.”

“Dirty” Electricity

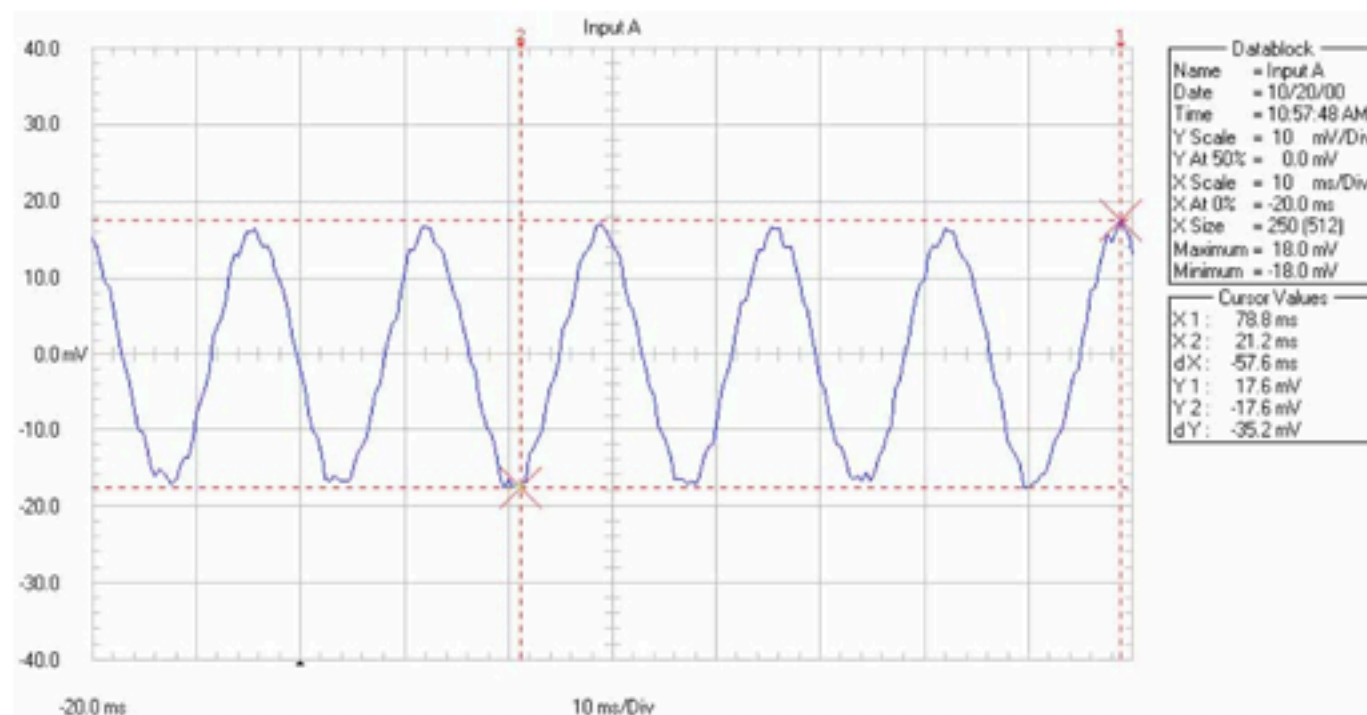
Transients and harmonics polluting the 60 Hz sine wave you pay the electric utility for.

Potent source of exposure to radiofrequencies.

Exposure occurs primarily through capacitive coupling and contact currents.



THE ABOVE WAVE FORM WAS BETWEEN 2 EKG PATCHES PLACED ON THE ANKLES OF WHILE SITTING ON A WOODEN CHAIR IN HER KITCHEN.



This waveform was collected at the house between 2 EKG patches placed on ankles while she was touching the kitchen sink. NOTE THE INCREASE IN AMPLITUDE.

Microwave or Radiofrequency Sickness

- First identified by the Soviets
- A constellation of symptoms and biological effects occurring with exposure to wireless technology
- RFI and “dirty” electricity also cause symptoms of Radiofrequency (RF) or Microwave Sickness
- Kazakhstan has established “dirty” electricity limits

Symptoms of RF/Microwave Sickness

Neurological: headaches, dizziness, nausea, difficulty concentrating, memory impairment, irritability, depression, anxiety, agitation, sleep disorders, fatigue, weakness, altered reflexes, muscle pain, sleepiness, fever, neural degeneration, and psychosis.

Cardiac: palpitations, arrhythmias, chest pain, low or high blood pressure, slow or fast heart rate.

Respiratory: shortness of breath, asthma.

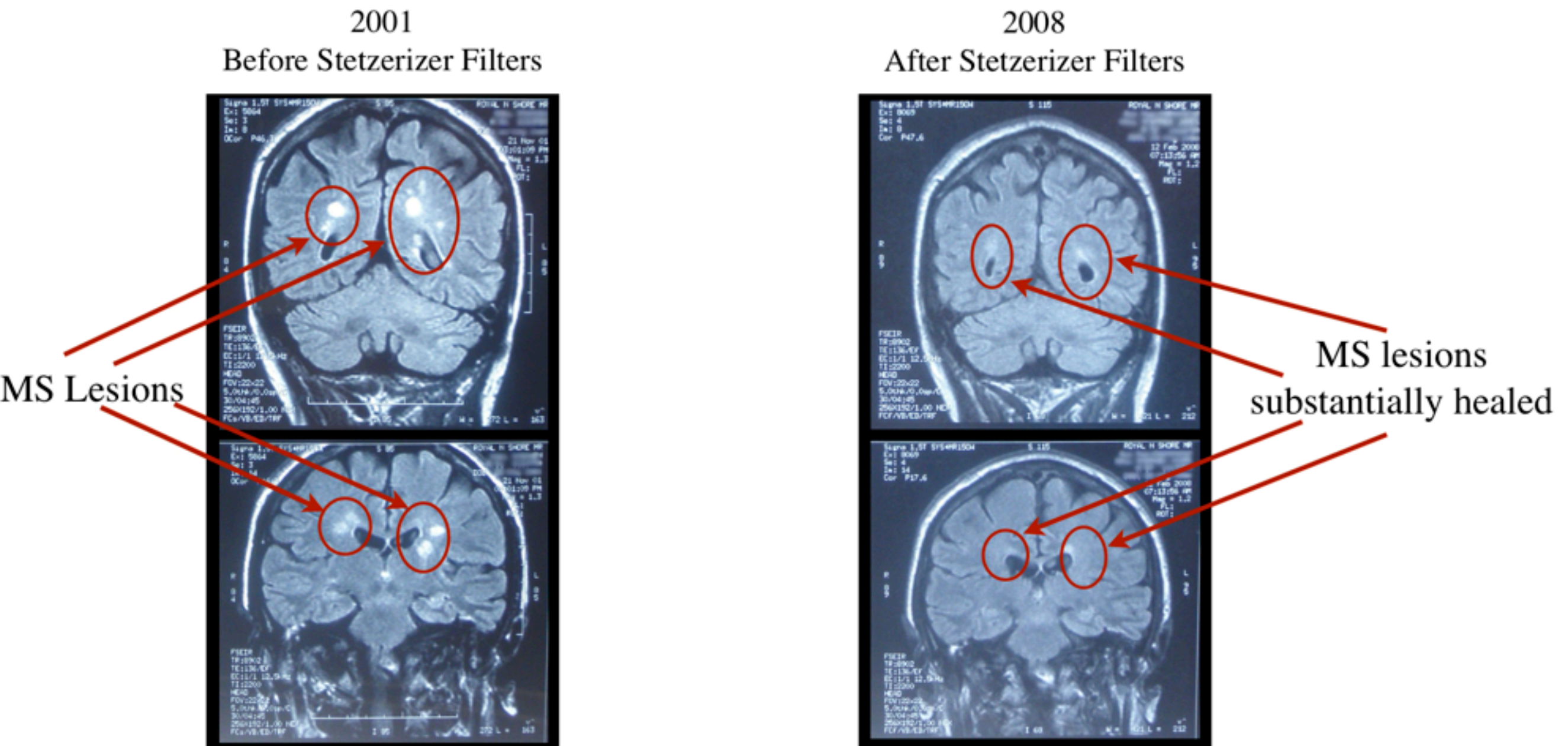
Dermatological: dermographism (e.g. psoriasis, eczema, inflammatory and allergic skin problems), increased perspiration of extremities.

Ophthalmologic: eye fatigue, ocular dysfunction, intraocular pressure change, cataracts.

Others: loss of appetite, gastrointestinal tract diseases, abdominal pain; internal bleeding; hair loss; brittle nails; impaired sense of smell; enlarged thyroid, impaired renal function, increased activity of adrenal cortex; cerebral atherosclerosis; hematological abnormalities; immune abnormalities; altered sugar metabolism; changes in enzyme activity; hormonal changes; miscarriages; (among others).

“Dirty” Electricity can be disabling

People with chronic fatigue syndrome, fibromyalgia, and multiple sclerosis have found that minimizing exposure improves or even eliminates symptoms associated with their condition.



RF is very pro-inflammatory so it is unsurprising that removal of this inflammatory stimulus would allow an inflammatory process to stop and healing to proceed.

RF exposure affects diabetes

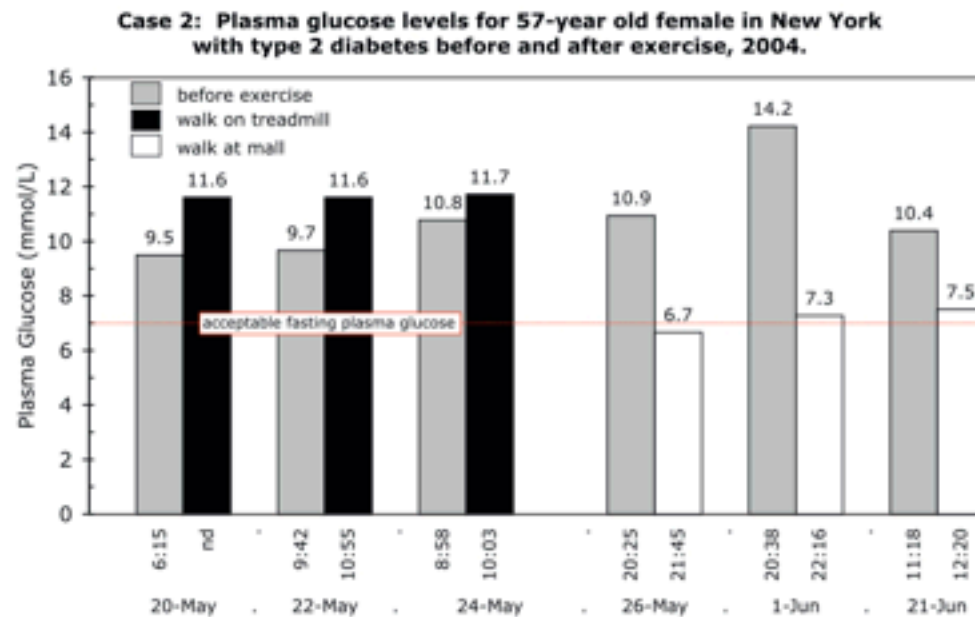


Figure 2. Case 2: Plasma glucose levels for a 57-year old female in New York with Type 2 diabetes, before and after walking for 20–30 min on a treadmill in her home and after hours at a mall.

Excerpted from “Dirty Electricity Elevates Blood Sugar Among Electrically Sensitive Diabetics and May Explain Brittle Diabetes”
Electromagnetic Biology and Medicine

The conventional wisdom is that exercise lowers blood sugar and increases insulin sensitivity. The graphs show RFI, “dirty” electricity, and wireless radiation impair these effects.

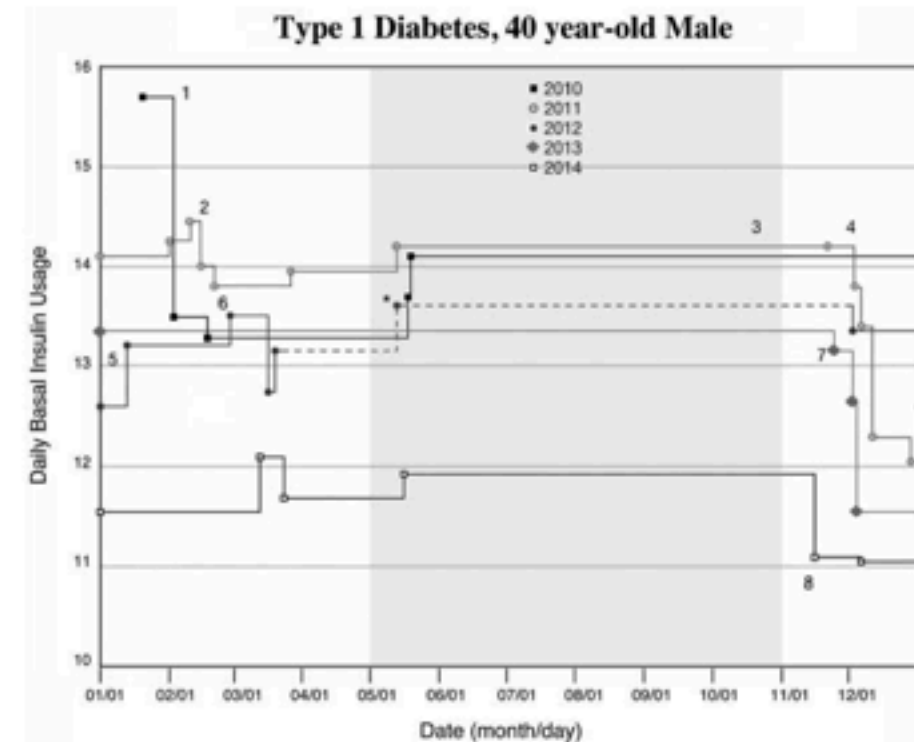


Figure 1. Changes in basal insulin rates through the year. Gray shading represents market season (May through October) and, therefore, higher RF exposure levels. Most changes in basal rate can be traced to changes in RF exposure.

- (1) A prolonged harvest season working for a cellphone-carrying neighbor caused cellphone exposure into January. Basal rate dropped once no longer exposed.
- (2) 18 Jan 2011 Ran DC well-pump for the first time on recently installed DC off-grid electric system. Running the system constantly with “dirty” charge controller and other polluting components may explain the brief rise in basal rates. Nonessential polluting components were removed. Then the system was run only while out of the house. 17 May 2013 Ordered new nonpolluting charge controller, installed shortly after.
- (3) 19 Oct 2011 Utility disconnected and removed secondary electrical lines to building site. Lines were disconnected due to the RF (electrical pollution) they carried, causing cardiac arrhythmias for the diabetic’s whole family.
- (4) 20 Dec 2011 Fully off-grid. Utility disconnected primary electrical line a quarter mile from the building site.
- (5) 6 Jan 2012 Notice that 4G cellphone service will be fully operational the next week.
- (6) March 2012 - Weather unseasonably warm so diabetic was outside earlier than usual, then back in, and out again.
- (7) Fall 2013 Shielded outside of half of house.
- (8) Continued shielding house throughout 2014.

* exact date of basal rate change missing, basal rate known

Excerpted from “Radiation from wireless technology elevates blood glucose and body temperature in 40-year-old type 1 diabetic male”
Electromagnetic Biology and Medicine

“Dirty” electricity harms children

Children whose exposure has been minimized have:

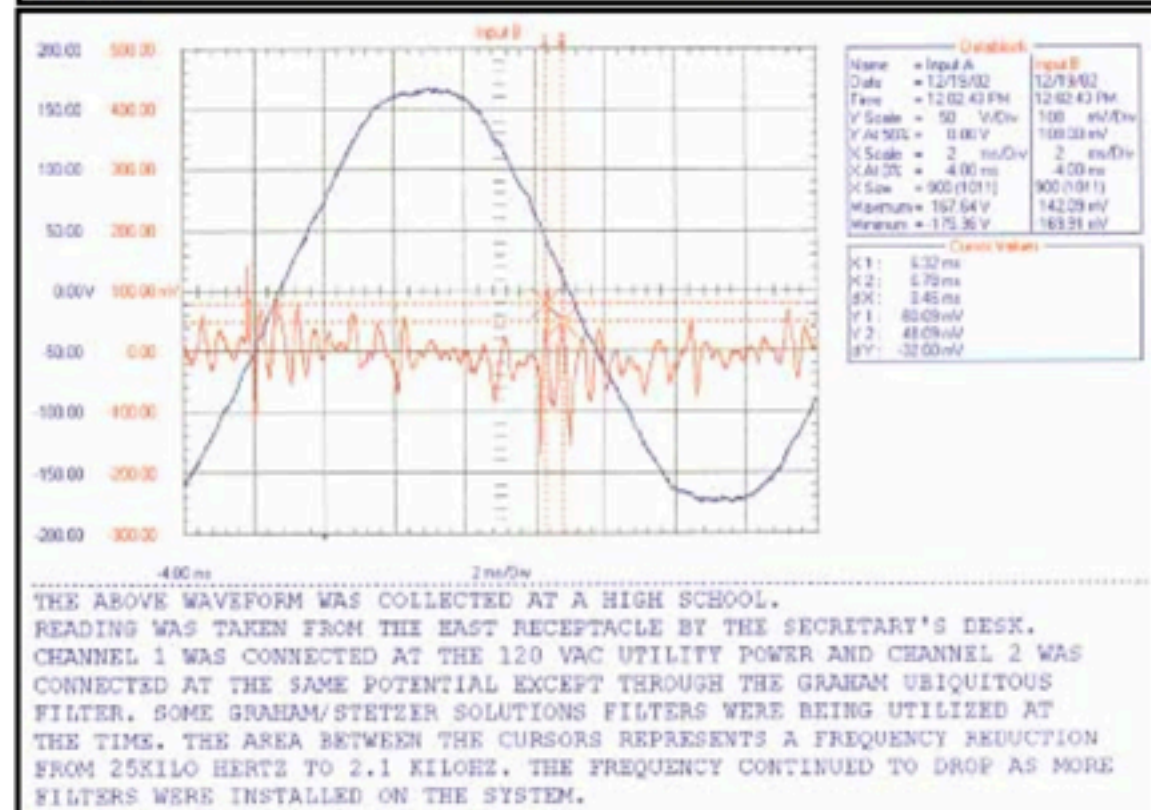
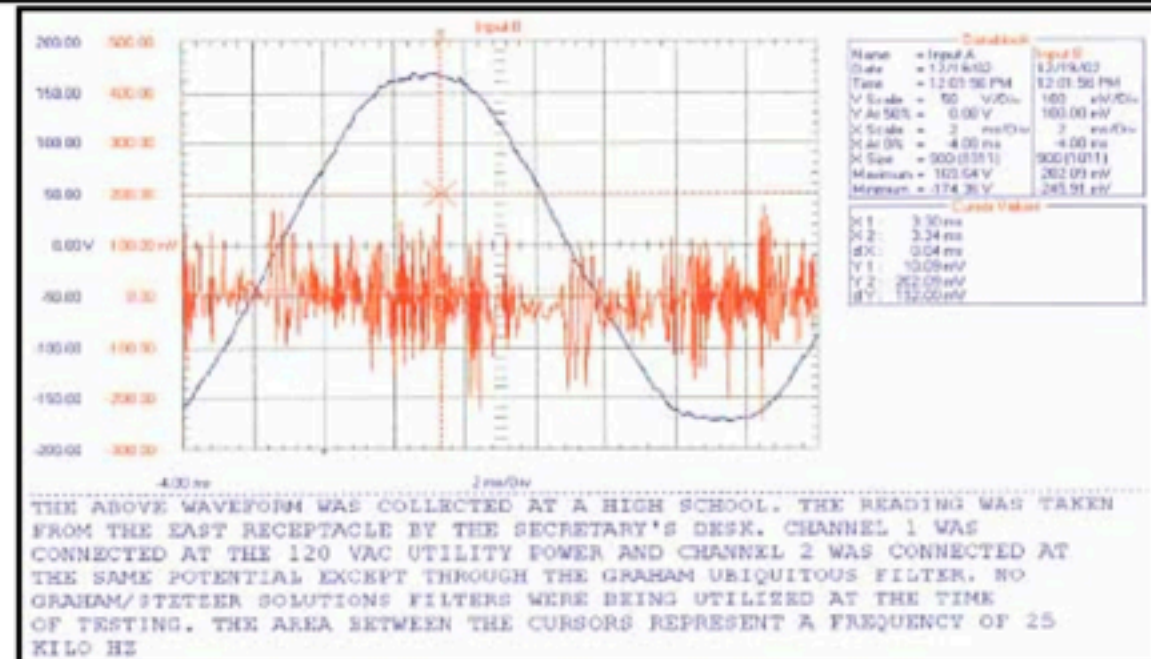
Improved blood sugar control

Stopped having seizures

Improved/eliminated asthma

Substantially improved/eliminated behavior and cognitive problems

Minimizing “dirty” electricity has improved the health of children and teachers and also improved classroom behavior, allowing more time for learning. Disciplinary problems have also been reduced in number and severity. As a side benefit, one school experienced a substantial reduction in their equipment maintenance costs.



Minimizing all RF Exposure Improves Children's Health

- Improved concentration and focus
- Decreased irritability and anxiety - less conflict and greater independence
- Improved sleep, appetite, headaches, dermatitis, reflux, and asthma
- Eliminated seizures and nosebleeds
- Improved heart rhythm - arrhythmia can manifest in kids as clinginess and profuse odiferous sweat and can be environmentally induced despite the slowness of cardiologists to recognize this fact.

Biological Mechanisms for RF Health Effects

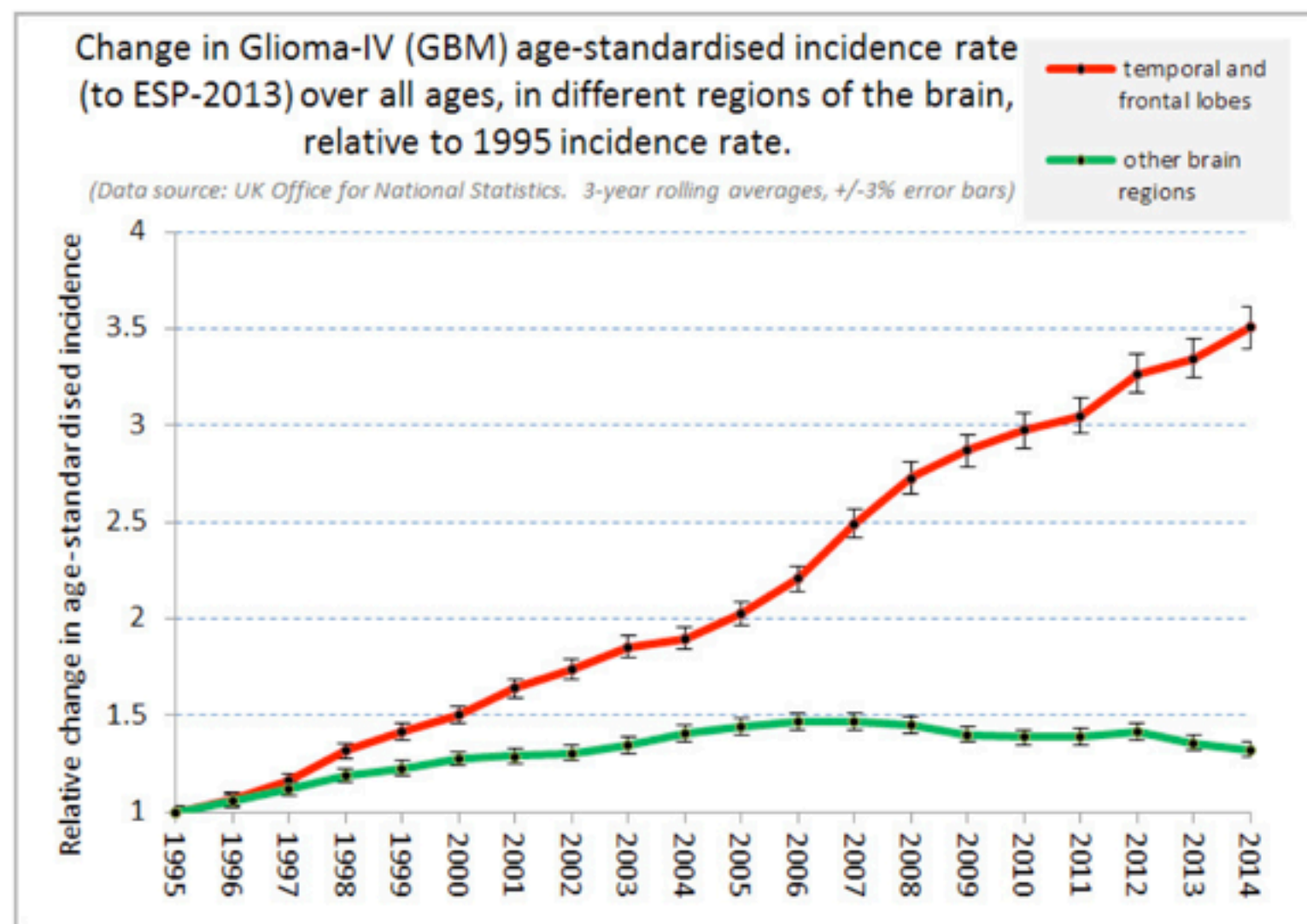
- Oxidation - inflammation and nutrient depletion, aging
- Interference with voltage-gated ion channels
- Causes DNA breakage
- Interferes with melatonin secretion and action
- Direct metabolic interference - changes in enzyme function
- Causes immune system impairment
- Increases membrane permeability, including the Blood/Brain Barrier
- Causes production of Heat Shock Proteins

“Clear Evidence of Cancer”

The U.S. National Toxicology Program:

Clear evidence of cancer for cardiac schwannomas - a nervous system cancer that is related to glioma. These findings were confirmed in a European study at lower RF exposure levels.

A separate European study found that RF is a cancer promoter. This probably explains findings in epidemiological studies that RF exposure is linked to numerous types of cancers.



Wireless devices - “Portable Cancer Generators”

- Lab and epidemiological studies dating back to the 1940’s support this designation.
- Chicago Tribune expose’ revealed that off-the-shelf popular cell phones exceed FCC radiation limits during standard testing.
- “Cell phones expose us to levels 2 to 10 times higher than FCC, according to cell phone radiation tests conducted by the French National Frequencies Agency on hundreds of cell phones. This is because cell phones are not tested in the way they are used—touching the body. When phones are radiation tested at body contact, they exceed limits,” stated Davis, referring to the [Phonegate Scandal](#) in France
- www.ShowTheFinePrint.org

Health Effects of RF Exposure Already Apparent

- Increasing cancer rates
- Depression, anxiety, irritability, poor sleep, lowered pain threshold, asthma, seizures, and cognitive, cardiac and neurological effects are all causally supported as resulting from RF exposure.
- RF linked cognitive difficulties include memory and concentration problems and “foggy” thinking.

Recent Studies Expose Hazardous Nature of Wireless Radiation

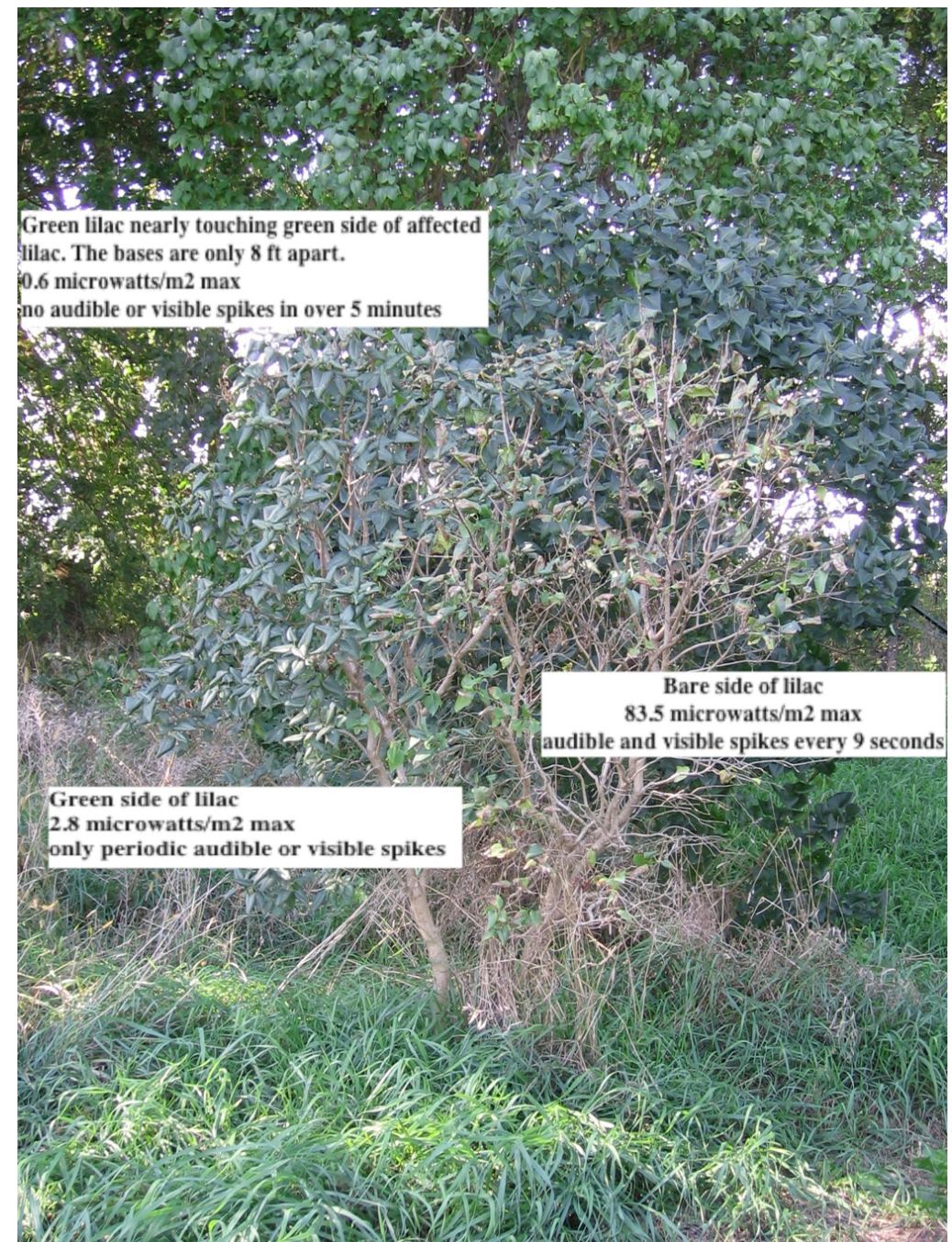
Studies have shown that RF disrupts endocrine function, including effects on thyroid hormones, TSH, ACTH, cortisol, prolactin in females, and testosterone in males. Changes in adrenaline, noradrenaline, dopamine, and phenylethylamine levels were found in response to an increase in ambient RF levels. A mouse study found that changes in cardiac function and structure can be caused by exposure to radiation from wireless technology, probably at least in part due to changes in electrolyte balance, since that same study found that renin levels were elevated. This would be consistent with RF exposure affecting voltage-gated ion channels and with findings in humans that RF exposure causes cardiac arrhythmia. Case studies document RF effects on blood glucose levels and insulin sensitivity.

Wireless Radiation Harming Environment

- Metabolic interference, oxidative damage, inappropriate voltage-gated ion channel activation
- Real Consequences:
 - Damage and kill trees & plants
 - Sterility in mice
 - Reduce survival & interfere with metamorphosis in tadpoles
 - Interfere with bird reproduction & navigation

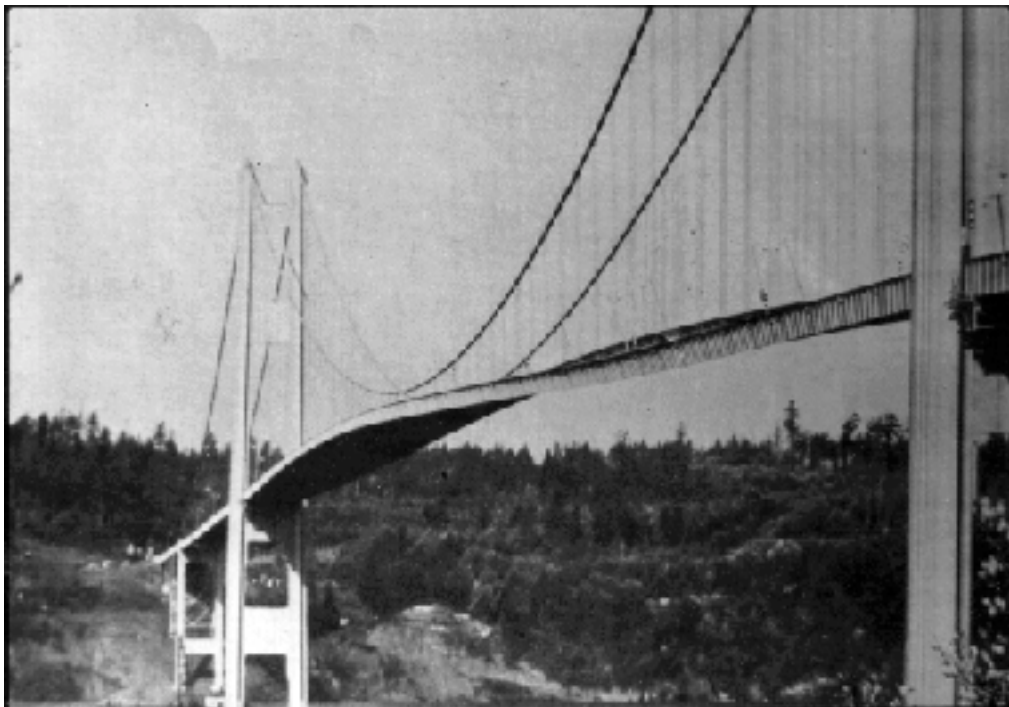
Recognizing Wireless Damage to Trees

- Poorly formed or small leaves across outside of crown
- Bare branches in crown
- Greying, yellowing, browning, and premature fall leaf color, especially in spots or across outside of crown
- Premature leaf loss without normal fall color.



5G/Small Cell Radiation Harmful Too!

Resonance - “The increased response of an electric or mechanical system to a periodic driving force oscillating at the frequency at which the system tends to oscillate naturally.” American Heritage Dictionary



Pictures accessed through Wikipedia

5G Devices AND Downlink May Result in Thermal Harm

Julian Gehman, a telecommunications lawyer, warns of serious thermal problems related to 5G
“Put simplistically, a burn is a burn. Prolonged human exposure to the SAR of four to 300 W/kg, that is projected by Nasim & Kim, would result in serious injury and possibly death. It does not matter to the victim whether the EMF energy comes from frequencies below or above 6 GHz.”

Driverless Cars - A Safety Hazard

- Wireless radiation CAUSES cognitive impairment, difficulty concentrating, impaired reflexes, and cardiac arrhythmias which could lead to driver heart attack.
- Radiation emitted affects backup drivers & nearby drivers & pedestrians
- POTENTIAL benefits vs. REAL HARMS: carcinogenic, reproductive, neurological, cardiac, and endocrine effects of wireless radiation.
- Alternative solution of MINIMIZING vehicular radiofrequency (RF) exposures has not been explored.
- When driverless cars fail, human operators are frequently not able to act fast enough to prevent an accident.
- Hackability of driverless cars - a safety hazard.

See RF in Cars at www.ElectricalPollution.com for more extensive information and references.

5G Not Necessary or Safe for Telemedicine

Wireless technology inherently insecure and hackable

Recent FDA advisory:

“These cybersecurity vulnerabilities may allow a remote user to take control of a medical device and change its function, cause denial of service, or cause information leaks or logical flaws, which may prevent a device from functioning properly or at all.”

“While we are not aware of patients who may have been harmed by this particular cybersecurity vulnerability, the risk of patient harm if such a vulnerability were left unaddressed could be significant,” said Suzanne Schwartz, M.D., MBA, deputy director of the Office of Strategic Partnerships and Technology Innovation in the FDA’s Center for Devices and Radiological Health.

Telemedicine should employ WIRED connections for security and safety reasons.

The “Rusty-bolt Effect”

- First identified by HAM radio operators as a source of RF interference
- Caused by RF crossing a metal to metal junction with even a tiny amount of corrosion, forming a diode
- In lay terms, a sparking event occurs each time the current starts to flow and stops flowing through the diode, causing RFI

What Can You Do?

- Wire your communications
- Opt-out of transmitting utility meters
- Clean up your electrical environment by eliminating polluting electrical devices like dimmer switches and by adding filters.
- Visit the Solutions Page at www.ElectricalPollution.com for a more complete list of steps. Print it and use it like a checklist.
- Refocus your life on satisfying real social interactions and experiences.

What Can You Do?

- Contact your Alderperson - Ask them to remove wireless from municipal buildings and take the actions recommended in the Boulder, Colorado Report.
- Contact your State Legislators - Ask them to REPEAL the 5G Bill and 2013 Act 20 preempting local control.
- Contact your Congresspeople - Ask them to REPEAL Section 704 of the 1996 Telecommunications Act, investigate FDA regulatory negligence, and mandate that the EPA establish biologically-based population and environmentally protective RF safety limits for all sources of RF exposure.

For more information

www.EHTrust.org

www.MDSafeTech.org

www.EMFScientist.org

www.ElectricalPollution.com

www.WisconsinSafeTech.com

www.WeAreTheEvidence.org

www.WhatIs5G.info



Solutions Page - Wireless Technology

Turn off, box up and put away all wireless technology which includes: WiFi, DECT cordless phones, wireless dog fences, etc.

- **Turn off WiFi, bluetooth, and airport transmitters on laptops and tablets.**
- **Check if your computer has a [Solid State Drive \(SSD\)](#).** An SSD communicates internally using wireless. The resultant radiation can be considerable. They measured 0.5 milliwatt/m2 and it cannot be turned off. Replace SSD drives with non-SSD drives.
- **Turn off transmitters on cellphones, smartphones, and tablets.** Using airplane mode turns off most transmitters and preserves batteries.
- **Look deep into the instruction manual for cellphones, smartphones, and tablets to find out how to turn off the microwave transmitter** which continually transmits the locator signal, allowing you to be tracked and it to be found when lost. (Alternatively, stick the phone in a metal pot with a tight-fitting metal lid when not in use.)
- **Hardwire your telephone and use a corded phone.**
- **Hardwire your internet connection: cable, DSL, or fiberoptic and be sure that the service box does not automatically emit a WiFi signal, many do. Get it replaced or the WiFi turned off if it does.** See this [video](#) for more information.
- **Purchase an RF detector and track down and turn off transmitters which may be hidden in stoves, refrigerators, washers, dryers, entertainment equipment, fans, etc.**

Corded wireless technology you do not eliminate can be plugged into [filtering power strips](#) so they can at least be definitively and easily turned off at night.

Solutions Page - Smart meters a.k.a. transmitting utility meters or AMR, AMI, ERT... meters

Place sheet metal between your living space and the transmitting utility meter.

- **Don't spend time near it (or your neighbor's transmitting meter).**
- **Plug in filters in several outlets installed on A phase and B phase right at the electrical box. (May need to have electrician install outlets for this purpose, following instructions below.)**
- **Visit www.stopsmartmeters.org to learn more about smart meters and how to get them removed from your home.**

www.ElectricalPollution.com

Solutions Page - Electrical Pollution

- **Turn off or unplug all devices that repel or kill deer, rodents, mosquitos, or anything else by emitting frequencies.** (We often test devices on animals to see if they are good for humans. The very effects these devices are designed for are telling you that they are not safe for people.)
- **Unplug or turn off any other devices that claim to generate frequencies.** (People with radiofrequency sickness need less exposure not more. Individual response to individual frequencies varies widely and there is *far* more likelihood of a negative effect than a positive one, in spite of claims to the contrary. Artificial sources claiming to generate the earth's magnetic field can also be dangerous and unnecessary- the earth's field is still there. Read Dr. Neil Cherry's paper "[Cardiac Effects of Natural and Artificial EMR](#)" for information about the profound effect the earth's natural electromagnetic environment can have on cardiac function.)
- **Unplug or remove touch lamps, plasma TVs, most [compact fluorescent bulbs](#), fluorescent lights with electronic ballasts, some full-spectrum lights, and wireless plug-in telephone jacks** since they are very bad sources of high frequencies.
- **Have an electrician remove dimmer switches and halogen lights.** If you want mood lighting, use three-way lights. Unlike with dimmer switches, you will save electricity on the low settings.
- **Remove flashers from decorative lighting.** Each on or off event results in a high frequency transient.

Solutions Page - Electrical Pollution

Eliminate sources of arcing (a source of very high frequencies):

- Sources in electrical panels and other areas of relatively uniform temperature can be identified with an [infra-red camera](#). Arcs or sparks will show up as hot spots.
- Have an electrician replace aluminum wiring with copper. Aluminum wiring can cause [electrical fires](#). Even when de-powered, it is a particularly bad source of RF radiation due to the ["Rusty-Bolt" Effect](#) and RF sparking, thus it is best to replace or simply remove all aluminum wiring.
- **Search for loose connections and bad switches and outlets with a battery operated portable transistor radio** - the Radio Shack Radio #12-467 works well. (You can show your electrician how this works. They all need to know how to do it since these are potentially a fire hazard, in addition to being a health hazard.)
- The method for doing this is to tune the radio to AM on a non-station and walk around with it near, *but definitely not touching*, the wiring in walls, outlets, and switches. You are likely to hear static throughout the house, however as you approach bad connections, switches, and outlets and appliances that emit a lot of RF, the static will get louder and as the radio gets farther away the static will quiet. Mark those connections, switches, and outlets for the electrician to tighten or replace. Try different non-stations since radios only detect the frequencies for which they are tuned.
- **Have an electrician tighten all connections in the main circuit board** in addition to addressing trouble spots identified in the previous steps.
- **Re-check house with portable radio**, smaller problems may have been covered up by larger problems, especially by problems occurring at the main panel.
- **Re-check the whole house every few years** so any problems are caught and addressed quickly. Electrical systems need to be maintained regularly to prevent problems.
- **Have your electrician replace poorly made switches, fixtures, and appliances using commercial grade switches, outlets, and fixtures.** All switches and outlets should be side-wired, not back-wired, and the screws should be tightened firmly to prevent arcing.

Solutions Page - Electrical Pollution

Use a gauss meter to detect wiring problems. Certain wiring problems cause high EMF. High readings on a gauss meter with no apparent cause - e.g. nearby motor, electronics, high voltage wires nearby, etc. - can indicate wiring problems. Improperly wired three-way switches; nails through wires, wiring parallel to plumbing are just some examples of such problems. Investigative work is often necessary.

- **Have an electrician bypass or remove variable speed frequency drives (VSFD) where possible.** Without appropriate filters they are very bad sources of high frequencies. If you have a VSFD on your motors in your heating and/or cooling system, it can easily be bypassed by the service person. The motor would then just run at high speed. Little efficiency is lost when this is done on a heating or cooling system. Energy efficient washing machines often have variable speed motors and thus require at least one filter.
- **Plug in high frequency filters.** (Such as those available from Stetzer Electric. Stetzer Electric can be reached by phone at (608) 989-2571 or at their website <http://www.stetzerelectric.com/>. Questions can be directed to sales@stetzerelectric.com).
- Approximately 20 Graham/Stetzer filters are needed for the average house. They should be plugged in near sources of high frequencies, as well as, frequently used electrical appliances. (Some devices generate pollution that the filter will lower at the receptacle, but will not lower at the device. This is a particular concern when people are close to the device, as they are with hairdryers, sewing machines, and low voltage halogen desk and reading lamps.)
- A couple should be plugged into outlets installed off of both A and B phases next to the main service box. (Have your electrician use properly rated stranded wire to wire the outlets for maximum filter effectiveness.)
- Install the rest in outlets around the house where the best reductions occur using the Stetzerizer Meter. If improvement occurs only slowly, more filters may be necessary. If way too few are installed initially, no difference may be observed, so **it is very important to put in sufficient quantity from the start.**

Solutions Page - Electrical Pollution

Only use laptops on battery. Recharge them when you are not around. They generate a large amount of "dirty" power and the transformer on the charging cord generates a very large field. Also use an external wired keyboard and mouse to reduce your exposure to the high frequencies from the processor.

- **Be sure to check electronics.** Some transformers converting AC power to DC power (the boxes that plug into the wall a.k.a. wall warts) are poorly designed and highly polluting. They pollute and use electricity as long as they are plugged in and the outlet is on. They often have a large electromagnetic field, measurable with a gauss meter, so keep your distance and unplug when not in use or plug into a [filtering power strip](#) so several related wall warts can easily be turned off when not in use. This will also [save money on your electricity bill](#).
- **If one or more consumer products are responsible for making you ill, please report them to the Consumer Product Safety Commission** at 1-800-638-2772 or <http://www.cpsc.gov>. Be prepared with the product name, model and/or serial number, and the symptoms it causes. **These dangerous consumer products will not be either removed from shelves or re-engineered unless complaints are filed.**
- **Have a plumber install about 2 ft of PVC pipe, pex pipe or a commercially available dielectric union between the house pipes (on the house side of the water meter) and the water/sewer system**, which has become an alternate return path for electricity. The ground for the electrical panel should be on the street side of the water meter. Pipes with high levels of ground current can cause high readings on a gauss meter.
- **Have your heating or gas technician install a commercially available dielectric union just after the gas pipes enter your home to electrically separate the gas tank or the system of natural gas pipes from the gas pipes inside your home**, often these pipes have become an alternate path for electricity or radiofrequencies and can also have high readings on a gauss meter.
- **Have the phone company install an Radio Frequency (RF) Filter on your phone line.** The phone line can conduct the electric utilities ground currents, including high frequencies, since they are both grounded to the same earth.

www.ElectricalPollution.com

- Common electrical devices, grid faults, and ambient RF radiation can cause radiofrequency interference (static), a source of RF exposure. People have found addressing these sources to be helpful [Detecting Radiofrequency Radiation Emitters with a Portable Radio](#)
- People experiencing symptoms of RF sickness in their vehicles may want to read [Radiofrequencies in Cars: A public health threat](#)
- People on off-grid energy systems or with grid-tied alternative energy systems should visit [Going Off-grid Safely](#).
- People areas with wind turbines or large-scale solar installations should visit [Wind Turbines Generate Dangerously "Dirty" Electricity](#).