

Alicia Murillo

From: cbdbosmail@co.santa-cruz.ca.us
Sent: Tuesday, September 10, 2013 3:34 AM
To: CBD BOSMAIL
Subject: Agenda Comments

0355

Meeting Date : 9/10/2013**Item Number :** 32**Name :** Steve Piercy**Email :** web@stevepiercy.com**Address :** Not Supplied**Phone :** Not Supplied**Comments :**

Dear Board of Supervisors,

I am writing to request your approval of the staff recommendations presented today in the broadband connectivity and expansion report.

The recommendations will make it easier to build a fiber optic backbone for high-speed Internet access in the County.

Internet access is critical for both the economic development of Santa Cruz County and to increase opportunities for residents to telecommute. This aligns with state, regional, and county transportation efforts to reduce greenhouse gas emissions and improve sustainability.

Additionally, access to install conduit for a fiber optic backbone along the rail line could be leased to fund development of the rail trail.

Thank you for your consideration.

Steve Piercy, Soquel resident and Internet technology business owner

SEP 24 2013

BOARD OF SUPERVISORS
COUNTY OF SANTA CRUZ

9/24/13

351 Redwood Ht. Rd.

Aptos, CA 95003

0356

To Santa Cruz Co. Board of Supervisors,
Re: Item 32 9/10/13 agenda rescheduled
for 10/11/13 agenda "Report on Broadband
Connectivity and Expansion"

This falsely alluring title disguises
some problems: (1) these are radiation
emitting antennas likened to cell
towers on utility poles with documented
health impacts due to proximity to
cell towers (see next paper) (2) evidence
of environmental plant and
wildlife damage, (3) violation of our
rights to be safe in our person and
property, (4) The "report" omits
disclosure of "microwave radiation"
negative biological effects —
including cancer clusters in
the vicinity of cell towers, (5)
property devaluation, (6) Coastal bird migration.

The County should Mandate an
independent CEQUA impact report.

① Without such a scientifically
based analysis, Planner Frank
Barron's "negative declaration" is
without foundation.

While a CEQA investigation ⁽²⁾ is in process, it's imperative to impose a moratorium on issuing permits (submitted request of 5/21/13 attached). It seems to me both unethical & possibly illegal to proceed proliferating Verizon's wireless microwave radiation 46 cell towers on poles without proof that safety, health, and environmental impacts will not occur. Furthermore, the County is listed as the property owner.

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(3) The County, as property owner, can refuse such a property "taking" from the public by Verizon for whatever reason. "Property owner" is not a "regulatory agency category."

(4) Please include these attached materials with the continued Item 32 on 10/1/13.

(5) Project Takebackyourpower: an investigation of the smart grid as part of the power point scheduled presentation - 10/1/13

→ especially the section on ^③ the cancer cluster at SDSU adjacent to a campus cell tower. 0358
As the County plans to "streamline" enhancing Verizon's take over of our public-right-of-way on our public land, such "cancer clusters" are an anticipated consequence.

The County should not be in the business of cancer promotion.

Enclosed materials to be included as part of item 32 (From 9-10-13 agenda) PLEASE

- ① Arthur Firstenberg 4G article w/
- ② "Let's stop property devaluating & carcinogenic cell towers on utility poles in aptos/seacliff area, where residents did not receive the "Notice of Public Hearing" usually sent to those within 1,000 feet of a proposed cell tower,
- ③ May, 2013 request for a moratorium of issuing permits & Chair County's acknowledgment,

(4) Scorched trees from 4G radiation (South Africa)

0359

(5) Carcasses of dead migrating birds (photos) by cell towers

(6) Excerpt Bees, Birds, & Mankind; Destroying Nature by Electrosmog.

(7) Health Impacts due to Proximity to Cell Towers

(8) "Pushback Against Cell Towers," on property devaluation.

(9) County Health Officers 1-24-12 Report recommending minimizing exposure to RF/MW. On the basis of Dr. Nankung's report, item 32 is contrary and therefore should be rejected.

(10) Looming Health Crisis: Wireless Technology & the Toxicification of America

(11) Nationwide Violations of FCC Radiation Limits at Wireless Radiation Sites

(12) Why our World is electro-polluted.

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Please inform me ASAP of actions taken in response to these requests.
Thank You. Marilyn Garrett 684-1401



Let's stop property devaluating and carcinogenic 4G cell towers on utility poles in Aptos/Seacliff area.

0360

4G is smart meters on steroids! Zoning meeting this Friday, 9/20/13!

Proposed by Verizon to be located on utility poles in the public right-of-way: 1) on Searidge, about a block from 76 station, 2) on McGregor at Mar Vista, with 13 more planned for Freedom/Day Valley/McDonald and throughout the county (presently on October 18th ZA agenda).

In a departure from normal procedure, you did **not** receive a "Notice of Public Hearing" usually sent to property owners and those who live or work within 1000 feet of a proposed cell tower. Even if you had been notified, the County omits disclosure of documented health impacts due to cell tower proximity*:

Sleeping disorders	Increased cancer incidence	Cardiovascular problems
Depressive tendencies	Chronic fatigue/ headaches	Concentration difficulties

*"Five Studies showing Ill-Health Effects from Masts" (i.e. cell towers) Document produced by Dr. Grahame Blackwell 21 Feb. 2005.

No resident and/or child has given informed consent to 24/7 involuntary bodily microwave radiation trespass. Children are especially vulnerable.

Science from 1932 to the present has demonstrated conclusively the harmful effects of "wireless" microwave radiation. Hundreds of oral and written health complaints followed the installation of PG&E's microwave "Smart" Meters. These emit biologically damaging pulsed modulated microwave radiation similar to 4G technologies. These testimonies prompted our County Health Officer to issue a report (as part of Item 41) "Health Risks Associated with Smart Meters" [and Other Wireless Technologies Such as Cell Towers] to the Santa Cruz County Board of Supervisors on 1/24/12 (available at www.co.santa-cruz.ca.us). Also see 4G letter from researcher Arthur Firstenberg (reverse).

Attend **Zoning Administrator meeting Friday, September 20th, 2013**, 701 Ocean Street (at Water), at 9:00 a.m. Submit written comments to project planner Frank Barron pln782@co.santa-cruz.ca.us or phone (831) 454-2530. Urge denial of the project and/or request that the item be continued in order to properly notify residents and allow time for the public to review staff report. Help protect our community. Also on this agenda is a continued hearing on the Boulder Creek 4G Verizon cell tower on Mountain Mechanic property. View the July 21, 2012 demonstration at S.C. Verizon store opposing their North Coast 4G rollout: <http://www.indybay.org/newsitems/2012/07/22/18718032.php>.

Get the independent science, not the industry spin:

takebackyourpower.net
cellphonetaskforce.org
emrpolicy.org

emfsafetynetwork.org
emfacts.com
stopsmartmeters.org

wirelesswatchblog.org
radiationeducation.com

**We do not consent to violation of our privacy, health, and property rights.
Register your opposition with our elected Supervisors:**

Santa Cruz County Board of Supervisors: (831) 454-2200

This material is provided by community volunteer labor and donations.

*Speak @ 9:00 a.m. Oral
Communications @ B. of S. meetings: 10/1, 10/22, + 10/29/13.*

Subject: From Arthur Firstenberg
Date: Sat, 17 Jul 2010 10:40:09 -0700 (PDT)

To All Concerned,

0361

The iPhone 4 went on sale April 20. The Droid X went on sale today. These are the gadgets that are driving the push to build hundreds of new cell towers in Santa Fe and hundreds of thousands throughout the United States. It's called 4G wireless technology. The increases in speed and bandwidth are phenomenal. With 2G phones people could only talk and text, and not at the same time. 4G phones can handle any combination of voice, Internet access, music, video games, TV reception and video streaming simultaneously. And they can do everything about 3,000 times as fast as 2G phones. All this uses hundreds of times more bandwidth. As if this weren't enough, most people leave their 4G phones on all the time, using up bandwidth even when they're not using their phones. All this means that existing networks of cell towers that provide complete coverage for ordinary cell phones are totally inadequate for 3G and 4G "Smart Phones." So where a company used to need five towers to serve its customers it now needs a hundred, and it needs to build them as fast as possible because people are buying up the new 4G phones as fast as the companies can sell them.

There are two tracks going on at City Hall with regard to this technology. One track began a couple of years ago when AT&T applied to the city to build four new high power cell towers, two at PNM substations, one on the roof the Hotel Santa Fe, and one in the chimney of the St. John's Methodist Church. The one at the Hotel has been dropped because of conflicts with the management of the Hotel. The other three are still in the works. In addition, both AT&T and Verizon are about to upgrade all of their existing cell towers to accommodate 4G technology, which means both more radiation and more bandwidth (both cause health effects) just from the towers that already exist. Applications will be submitted this week to upgrade antennas on the Marcy Street tower; the tower by the landfill; the tower at Cerrillos and Airport Road; and the tower on Camino Carlos Rey behind Pep Boys (hidden in a false chimney). A flurry of other applications are expected in the coming weeks and months.

The second track has to do with the new telecommunications ordinance that was just passed by the City Council. This will give franchises to a new kind of company that will come in and build small cell towers every half mile everywhere in Santa Fe. I am calling antennas on existing utility poles towers. These will be small in size but not in power. Although they will be less powerful than, say, the antennas on the Marcy Street tower, they will be much closer to where people live and work, and the net effect will be to increase radiation levels throughout Santa Fe tens to hundreds of times, depending on where you live. These "distributed antenna system" companies will lease their towers, in turn, to AT&T, Verizon, Sprint-Nextel, and T-Mobile so that all their customers who are buying Smart Phones will be able to use them.

4G technology will also soon turn every cell phone into a mobile WiFi hotspot. Verizon's Droid X already has this capability (it rebroadcasts what it receives from any nearby hotspot), and other Smart Phones are sure to copy this feature.

The result of all this is that Santa Fe will soon be swimming in levels of radiation that no one is prepared for.

Arthur Firstenberg
PO Box 6216
Santa Fe, NM 87502
(505) 471-0129

Arthur Firstenberg is an author and consultant on the health and environmental effects of electromagnetic energy. He is a founder and president of the Cellular Phone Task Force, a nonprofit organization. He is the author of *Microwaving Our Planet: The Environmental Impact of the Wireless Revolution* (1997), and he edited and published the journal *No Place To Hide* from 1997 to 2002. He can be contacted at (505) 471-0129 or (707) 937-3990.

To Board of Supervisors, S.C.B. Co. 5/21/13

We petition the S.C.B. of S
to impose a 9 mo. moratorium on issuing permits for telecom antennas & towers, this would give staff time to examine how other counties & cities are responding to applications for DAS, & to carefully craft a Telecom Ordinance that best serves our community.

Marilyn Garrett
351 Redwood Hills Rd
Aptos, CA 95003

★ Distributed Antenna Systems



County of Santa Cruz

BOARD OF SUPERVISORS

701 OCEAN STREET, SUITE 500, SANTA CRUZ, CA 95060-4069
(831) 454-2200 • FAX: (831) 454-3262 TDD: (831) 454-2123

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JOHN LEOPOLD
FIRST DISTRICT

ZACH FRIEND
SECOND DISTRICT

NEAL COONERTY
THIRD DISTRICT

GREG CAPUT
FOURTH DISTRICT

BRUCE MCPHERSON
FIFTH DISTRICT

May 23, 2013

Marilyn Garrett
351 Redwood Heights Road
Aptos, CA 95003

Dear Mrs. Garrett:

I am writing to acknowledge receipt of your letter requesting that the Board impose a nine month moratorium on issuing permits for telecom antennas and towers. A copy of your letter will be circulated to each member of the Board for their individual consideration.

Sincerely,



NEAL COONERTY, Chairperson
Board of Supervisors

NC:ted

cc: Clerk of the Board

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Scorched tree poser for cellphone giant

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Woman in solo crusade to end 4G roll-out across SA

JOBURG woman believes the imminent roll-out of 4G cellular telephony could have massive health implications for anyone in the path of the signal.



PICTURES: PABALLO THEKISO BLACKENED: This tree looks burnt, but it's not. According to Tracey-lee Dorny, the blackening is caused by a cellphone tower's radiation slowly damaging the trees and plants – and it could also be affecting us.

The government disagrees. So does cellphone giant MTN, which is doing 4G/LTE testing in the north of Joburg.

Tracey-lee Dorny has 60 pine trees in her garden. They have all been burnt and blackened – in the last five months. Her neighbours also report blackened trees.

"I first noticed these big scorch marks on my pines, and then some of the eucalyptus and the fir trees around Fourways," says Dorny, chairman of the Electromagnetic Research Foundation of SA, from her Craigavon home. "It's like very focused beams are coming through here and hitting some of

the trees and plants. The signals are fairly high-powered and they're transmitting long distances... The resin just bursts open."

4G is the fourth generation of wireless communication standards, converging cellphones wirelessly in an era of ultra-fast broadband internet access.

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Dorny suspects the sudden firestorm in her garden is MTN'S testing of its new technology in her area, which she believes corresponds with reports of illnesses in Fourways, Dainfern, Sunninghill and further afield.

The trees are an indicator of what is to come, she believes. "We're receiving more reports of headaches, blurry vision, tinnitus and nausea and problems with breathing and hair loss in the area. Children are experiencing severe shooting pains in their muscles and joints."

Last year she won an epic battle against iburst when it removed a wi-fi mast it had erected A30m from her bedroom window, which had caused her family to fall ill. She has since been diagnosed as electrosensitive, becoming physically ill when exposed to electromagnetic radiation.

This month Dorny wrote to the Ministers of Communication, Health, Water and Environmental Affairs about her foundation's concerns. She told them the MTN testing was the cusp of the next technological revolution with digital TV being next.

"The number of service providers in South Africa wanting to roll out the service, if it is allowed, will result in a bigger impact on health and environment and the deployment of even more towers."

Israel, she said, had forbidden a 4G/LTE roll-out until a proper study was done but in SA the government had not acted on an industry that was self-regulating, unmonitored and out of control. "We want an investigation to find out who is doing what and who is testing... but Icasa have told us that once people are licensed, they have no idea what they roll out, when and where and how."

This week Amanda Britz of the Department of Environmental Affairs wrote that the Department of Health was "satisfied that, based on the current research and guidelines, which are endorsed by the World Health Organisation (WHO), the health of the general public is not being compromised (by) their exposure to the microwave emissions of cellular base stations".

However, says Dorny, there are areas in Joburg where the levels are high and uncontrolled.

"But the companies will tell you they're perfectly safe, but nobody is monitoring... Our levels compared with what other countries define as safe levels are two totally different things. It just takes that one extra signal, frequency, or a Wimax, then you find a lot of people start to get ill. They get headaches and rashes, but the minute they switch it off, or remove it from their office, their symptoms go away."

Last year the WHO revealed that the International Agency for Research on Cancer had declared that the electromagnetic fields produced by cellphones are possibly cancer-causing.

Kanagaratnam Lambotharan, MTN chief technology officer, disputes the claims. "LTE is a standard that is part of the evolution of 3G, which incorporates significantly increased data rates and better performance to enhance the mobile broadband experience."

MTN, he says, ensures that everything from 2G to 3G and 4G/LTE adheres to all world safety benchmarks. "There's no evidence to convince experts that exposure below the guidelines set carries any health risks, for adults or children."

The WHO found no evidence that "the weak RF signals from base stations and wireless networks" cause adverse health effects, he says.

South Africa

<http://thestar.newspaperdirect.com/epaper/viewer.aspx>

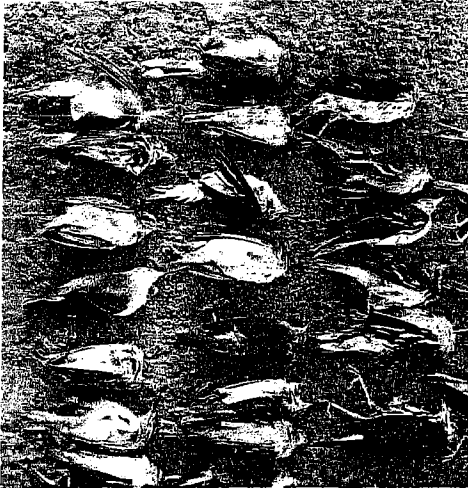
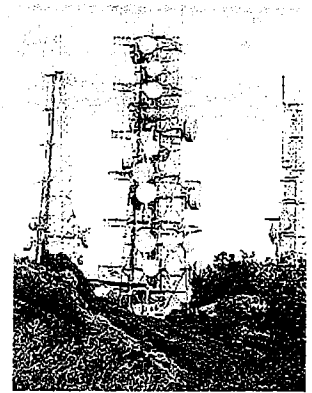
Press Release

0366

Conservationists Fight in Court to Enforce Protections for Migrating and Endangered Birds

Millions of birds die annually in collisions with cellular and television towers

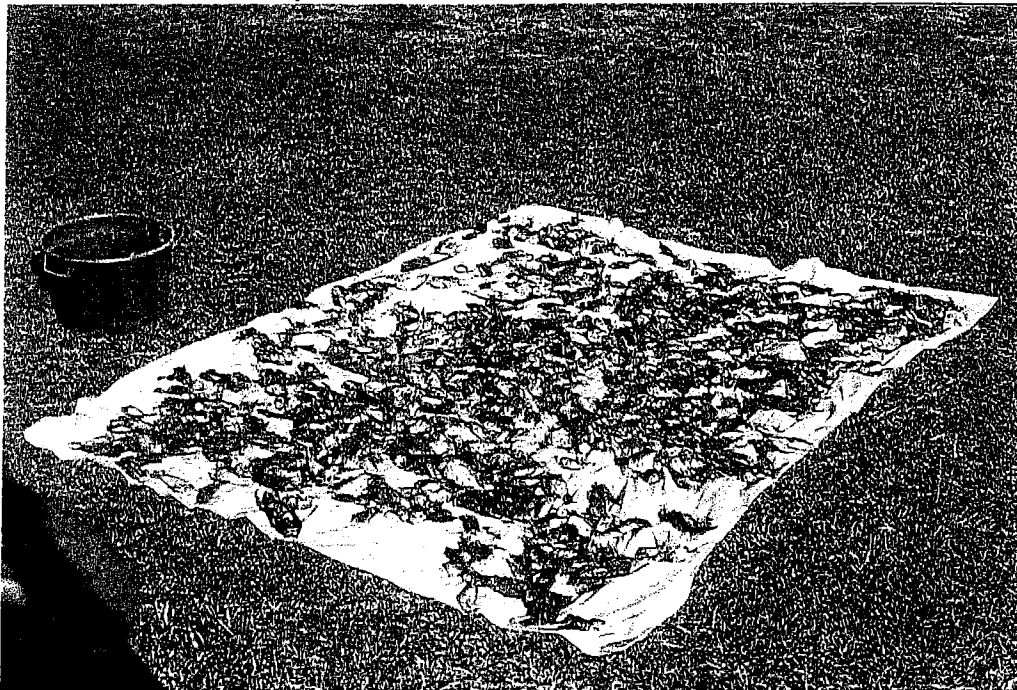
April 8, 2005



Birds found dead under a communications tower in Madison, WI, Sept. 2005. Photo by Andy T. Paulios.

Washington, D.C. -- Conservation groups today filed a petition in federal court to see action from the Federal Communications Commission (FCC) to protect millions of birds killed annually in collisions with telephone, radio, cellular and other communications towers nationwide. FCC has refused to implement guidelines that will protect bird populations and limit needless killings occurring every day.

Earthjustice, on behalf of American Bird Conservancy and Forest Conservation Council, filed a petition in the United States Court of Appeals for District of Columbia Circuit that seeks a court order directing FCC to respond to this problem. In August 2002, American Bird Conservancy and Forest Conservation Council filed a request with FCC to comply with applicable federal laws when licensing these towers for construction. FCC has since offered no response, and millions of birds have died as a result.



976 birds killed in a single night at a Florida TV tower. Photo by Robert Crawford.

SmartMeters are Hurting Bees

Posted on June 24, 2011 by onthelevelblog



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Scientific- as well as anecdotal -evidence is emerging that electromagnetic fields from cell phones, wifi, and "smart" meters can negatively impact bees, and may be behind much of the recent "colony collapse disorder."

Stop Smart Meters! received this report yesterday via e-mail:

From Susan Morin, Red Wolf Ranch, Grass Valley CA:

We had three bee hives that were healthy and had no other reason to leave—when bees are uncomfortable, threatened, or lack food sources, they leave. Now, a colony will leave individually, yet these hives, all on completely different areas of the property left with in three days of the installation of a PG&E smart meter. We also called PG&E and asked them not to install, and they did when we were off the property.

I have read reports on the smart meters and was not enrolled that they were/are safe and now have evidence that they effected our personal livelihood and lost three hives which equates to \$250/hive loss, pollination loss to fruit tress (bees pollinate 80% of all fruits and vegetables) \$5k+/-, and honey as a source of medicine and food \$4k.

The math does not equate, the loss of pollination does not equate, and the rapid push of PG&E to do this just because they may be at a financial loss—does not equate when it DOES in FACT harmfully affect our community, livelihoods, and food stuffs.

I have experienced this personally and documented it. Call and email if you need further documentation.

Thank you for listening and doing the right thing.



BEES, BIRDS AND MANKIND

Destroying Nature by 'Electrosmog'

Ulrich Warnke

Effects of Wireless Communication Technologies

A Brochure Series by the
Competence Initiative for the Protection of Humanity,
Environment and Democracy

Brochure 1

Electromagnetic fields as prerequisite and hazard to life

Author's introduction to this paper

The question of causal effects and biological relevance of electrical and magnetic parameters is generally posed without simultaneous reference to their relevance to life's organisation. These questions cannot, however, be considered in isolation of each other. What role have the electrical and magnetic fields played in the evolution of life on earth? What role are they playing in the individual development and physiological capacities of an organism? Whoever investigates these questions must sooner or later conclude: Not only did the electrical and magnetic fields of our planet exist before all life, but they have had a decisive hand in the evolution of the species – in water, on land and in the near-earth atmosphere. Living creatures adapted to it in the development of their kind.

Biological experience teaches us that life will use the energy pool in which it finds itself to its best advantage. Advantageous not only because the absorbed energy is a carrier of information, useful for orientation in the environment (see glossary; herein-after GL). But advantageous also because the organism developed to make use of gravitational and electromagnetic interactions, creating decisive functionalities of life. The biological system expresses itself just as the environment does and unity and coordination with its environment is its guiding principle.

But if bees and other insects disappear, if birds are no longer present in their traditional territories and humans suffer from inexplicable functional deficiencies, then each on its own may appear puzzling at first. The apparently unrelated and puzzling phe-

nomena actually have a common trigger, however. Man-made technology created magnetic, electrical and electromagnetic transmitters which fundamentally changed the natural electromagnetic energies and forces on earth's surface – radically changing million-year-old pivotal controlling factors in biological evolution.

This destruction of the foundations of life has already wiped out many species for ever. Since this extinction of species mostly affected ecological niches and hardly ever own life, most of us were not interested. But now, the endangerment of animals is also threatening the survival of man in a new and unexpected way.

Animals that depend on the natural electrical, magnetic and electromagnetic fields for their orientation and navigation through earth's atmosphere are confused by the much stronger and constantly changing artificial fields created by technology and fail to navigate back to their home environments. Most people would probably shrug this off, but it affects among other one of the most important insect species: the honeybee.

Because the bee happens to be the indispensable prerequisite for fructification: without bees, the fruit, vegetable and agricultural crops will fall short.

We are, however, not only affected by the economic consequences of our actions. It can also be proven that the mechanisms evidently affecting birds and bees are also affecting the human organism. An all-round unnatural radiation with an unprecedented power density (GL) is also harming human health in a novel way.

But, unless mankind reminds itself of the basics of its existence and unless the politicians in charge put a stop to the present development, the damage to health and economic fundamentals is predictable and will fully manifest itself not now, but in the next generation.

The reasons for this are explained in this paper. It endeavours to quantify natural electrical and magnetic signals provided to men and animals as guiding signals throughout evolution. The paper, however, places particular emphasis on what happens when these natural signal amplitudes are suppressed, changed and distorted on an unprecedented scale by technically generated artificial fields. Mankind can only take successful countermeasures if the damage mechanisms are understood.

3.7 Effects of technically generated fields on bees

We investigated the reaction of bees to artificially created electrical fields in the laboratory (WARNKE 1975, 1976, WARNKE et al. 1976) and found the following: 50 Hz AC fields with field strengths of 110 V/cm cause significant restlessness of the bees in their enclosure. The colony temperature increases greatly. The defence of the social territory is uncontrollably increased to the point where individuals in a colony stab one other to death. They no longer recognise one other.

After a few days in the field, the bees tear their brood from the cells; no new brood is reared. Honey and pollen are also depleted and then no longer collected. Bees that were newly established in their hives shortly before the start of the experiment always abandon the hive again and disappear when the electrical field is switched on. Bees that have lived in their hive for a long time, plug all the cracks and holes with propolis, including the entrance. This otherwise only happens in winter in a cold draught.

Since an acute lack of oxygen develops when the cracks and the entrance are plugged, the bees attempt to introduce air by intensive fanning. In this process, the wing muscles generate temperatures high enough to melt the wax. The animals attempt to fight the temperature increase by more fanning. In the end, the colony burns itself out. This implies the death of all members of the colony – which we could obviously prevent in future.

With very sensitive colonies, the reaction signal was measurable from field strengths of 1 V/cm and frequencies between 30 Hz and 40 kHz. When the field is switched on, the animals suddenly move their wings and buzz at frequencies of 100–150 Hz (WARNKE 1973, 1976, WARNKE et al. 1976).

With signals in the frequency range of 10 to 20 kHz, the aggressiveness was



Fig. 15: Wing section of bees enlarged with scanning electron microscope. Observe the special structures serving to focus the electrical field.

Warnke 1989, Copyright Ulrich Warnke

increased and the homing ability much reduced even though the natural meteorological and electromagnetic environment was intact in the flight space (WARNKE, 1973).

Scientists from the University of Koblenz-Landau conducted several experiments, looking at different aspects and questions, to measure the homing behaviour of bees (*Apis mellifera carnica*) as well as the development of mass and area of the combs under the influence of electromagnetic radiation (KUHN et al. 2001, 2002, STEVER et al. 2003, 2005, HARST et al. 2006).

They recorded an increase in agility, an increased swarming drive and no winter clustering when under the influence of EM radiation of cordless telephones.

In other experiments with base station fields of the DECT cordless telephones (1 880–1 900 MHz, 250 mW EIRP, 100

Hz pulsed, 50 m range, permanent exposure), the weight and area development of the colonies was slower compared to the colonies that were not exposed to a field.

The homing ability of the bees was tested from five days after the DECT telephones were introduced. There were significant differences in the return times of the colonies that were in the field and those that were not. No more than six of the bees exposed to the field ever returned – sometimes none returned. With the bees not exposed to a field, there were returning bees at any point in time of the experiment.

5. Summary

For many decades, research results showing that the natural electrical and magnetic fields and their variation are a vital precondition for the orientation and navigation of a whole range of animals, have been freely available.

What has also been known to science for many decades is that we as humans depend on this natural environment for many of our vital functions.

Today, however, this natural information and functional system of humans, animals and plants has been superimposed by an unprecedented dense and energetic mesh of artificial magnetic, electrical and electromagnetic fields, generated by numerous mobile radio and wireless communication technologies.

The consequences of this development have also been predicted by the critics for many decades and can now no longer be ignored. Bees and other insects disappear, birds avoid certain areas and are disoriented in other locations. Humans suffer from functional disorders and diseases. And those that are hereditary are passed on to the next generation as existing defects.



Health Impacts Due to Proximity to Cell Towers:

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South Bend, Indiana: heart palpitations, interference with hearing, recurring headaches, short-term memory loss, sleep disturbances, multiple tumors, glandular problems, chronic fatigue, allergies, weakened immune system, miscarriage, inability to learn.¹

Germany: (within 400 meters = 1312 feet = ~¼ mile) significantly higher rates, and earlier development (8 years earlier), of malignant tumors; after 5 years of tower operation, cancer risk increased to 3 times that of those living outside area.²

Spain: (up to 300 meters = 984 feet) fatigue, sleep disturbances, headaches, feeling of discomfort, difficulty concentrating, depression, memory loss, visual disruptions, irritability, hearing disruptions, skin problems, cardiovascular disorders, dizziness (these are the symptoms of electrohypersensitivity, a condition recognized by the World Health Organization). Repeat study recording exposure to radio frequency: within 50-150 m (164 – 492 feet) of cell phone antenna at 0.11 +/- 0.19 microW/cm² – headaches, sleep disturbances, irritability, difficulty concentrating, discomfort, depression, dizziness, appetite loss, and nausea.^{3, 4}

France: extreme sleep disruption, chronic fatigue, nausea, skin problems, irritability, brain disturbances, and cardiovascular problems.⁵

Egypt: high risk for developing nerve and psychiatric problems, and changes in neurobehavioral function; significantly lower performance on tests for attention, short-term auditory memory, and problem-solving⁶

Israel: those living near a cell tower for 3-7 years had a cancer rate 4 x higher than control population, with breast cancer most prevalent⁷

Animals:

Dairy cattle: significant drop in milk yield, behavioral disorders after erection of a telecom mast with cellular antenna and TV antenna (when they were moved 20 km away, milk and behavior returned to normal), abortion, death due to acute cardiac and circulatory collapse with internal bleeding from several organs⁸

Birds: reproductive problems, aggression among nesting pairs, infertility⁹

Trees: possible leading cause of forest die-off instead of acid rain or climate change¹⁰

Bees, bats, butterflies, birds, insects, and other wildlife (also humans): impact on orientation and navigational ability (due to presence of magnetite in organism), impact on NOS (nitrous oxide system) which controls the immune system, and is involved in the ability to smell and learn¹¹

"Laboratory studies of radio frequency radiation as well as epidemiological studies of people who live near cell phone antennas and/or use wireless technology indicate adverse biological effects. These effects include

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increase in cancers, DNA breaks, impaired reproduction, increased permeability of the blood-brain barrier, altered calcium flux, changes in enzyme activity, neurological disorders, altered brainwave activity, insomnia, decreased memory, inattention, slower reaction time, tinnitus, dizziness, skin disorders, headaches, chronic pain, chronic fatigue, respiratory problems and arrhythmia.

A growing population is becoming sensitive to electromagnetic energy and some of these people are affected by radio frequency radiation and are unable to live near antennas. Animals that live near cell phone and broadcast antennas are also affected by RF radiation, which manifests itself in reproductive impairment and behavioral abnormalities.

The cancers and symptoms of EHS (electrohypersensitivity) occur at levels well below the FCC guidelines for radio frequency radiation. These guidelines are based on short-term (30-minute) thermal effects and are inadequate to protect the population from long-term, non-thermal exposure. The FCC guidelines conform to ICNIRP guidelines but are much higher (i.e. less protective) than guidelines in other countries.

Metal objects such as wiring in the home, fences, poles, roofs, filing cabinets can redirect RFR and create hot spots or interfere with reception. This applies to metal implants and metal objects on or near the body (zippers, glasses, jewelry, etc.). For this reason calculations of exposure may not be as reliable as actual measurements."

in "Analysis of Health and Environmental Effects of Proposed San Francisco Earthlink Wi-Fi Network", May, 2007. Magda Havas, B.Sc., Ph.D. Environmental & Resource Studies, Trent University, Canada
(http://www.buergerwelle.de/pdf/snafu_havas_wifi.pdf)

¹ Hicks, Onnink, Barber, Pennington v. Horvath Communications, Cause No. 71C01-0107-CP St. Joseph Circuit Court, St. Joseph, County, Indiana

² Eger, H. et al. 2004. The Influence of Being Physically Near to a Cell Phone Transmission Mast on the Incidence of Cancer. *Umwelt-Medizin-Gesellschaft* 17,4 2004, as: 'Einfluss der räumlichen Nähe von Mobilfunksendeanlagen auf die Krebsinzidenz'.

³ Santini, 2001. Symptoms experienced by people in the vicinity of cellular phone base station in *La Presse Medicale*

⁴ Oberfeld, G. et al. 2004. The microwave syndrome-further aspects of a Spanish study. *Biological Effects of EMFs*, Kos Greece, October 2004

⁵ "Study of the health of people living in the vicinity of mobile phone base stations: I. influences of distance and sex," R. Santini et al, *Institut National des Sciences Appliquées—laboratoire de biochimie-pharmacologie*, 2002

⁶ "Neurobehavioral Effects Among Inhabitants Around Mobile Phone Base Stations," Abdel-Rassoul et al, *Neurotoxicology*, 8-01-2006

⁷ "Increase of Cancer Near Cell-Phone Transmitter Station," Wolf D. and Wolf, *International Journal of Cancer Prevention* 1-2, April 2004

⁸ Löscher and Käs. 1998. Conspicuous behavioural abnormalities in a dairy cow herd near a TV and Radio transmitting antenna. *Practical Veterinary Surgeon* 79: 5, 437-444

⁹ Balmori, A. 2005. Possible effects of electromagnetic fields from phone masts on a population of white stork. *Electromagnetic Biology and Medicine* 24:109-119

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¹⁰ Wolfgang Volkrodt and Ulrich Hertel, also "... There is also this important fact: any tree may act as a receiving dielectric rod or monopole antenna with the ability to both absorb energy from the wave passing by and to scatter the wave in many directions. If the polarization of the transmitting tower antenna matches the particular tree or trees (i.e. vertical orientation of the antenna which is usually the case for collinear dipole arrays on towers), maximum coupling or absorption of the wave energy by the tree will occur. Polarization and conduction currents will generally flow to the root system.

from Chapter 11: "Brief Overview of the Effects of Electromagnetic Fields on the Environment" by Raymond S. Kasevich, BSEE, MSE, PE, Registered Professional Electrical ; Cell Towers: Wireless Convenience or Environmental Hazard? Proceedings of the 'Cell Towers Forum' State of the Science/State of the Law edited by B. Blake Levitt (2001)

¹¹ Warnke, 2007. Bees, Birds and Mankind – Destroying Nature by 'Electrosmog'. Kompetenzinitiative, Stuttgart, Germany

August 27, 2010

A Pushback Against Cell Towers

By MARCELLE S. FISCHLER

0375

http://www.nytimes.com/2010/08/29/realestate/29Lizo.html?_r=1&pagewanted=print&

TINA CANARIS, an associate broker and a co-owner of RE/MAX Hearthstone in Merrick, has a \$999,000 listing for a high ranch on the water in South Merrick, one of a handful of homes on the block on the market. But her listing has what some consider a disadvantage: a cell antenna poking from the top of a telephone pole at the front of the 65-by-100-foot lot.

“Even houses where there are transformers in front” make “people shy away,” Ms. Canaris said. “If they have the opportunity to buy another home, they do.”

She said cell antennas and towers near homes affected property values, adding, “You can see a buyer’s dismay over the sight of a cell tower near a home just by their expression, even if they don’t say anything.”

By blocking, or seeking to block, cell towers and antennas over the course of the last year, Island homeowners have given voice to concerns that proximity to a monopole or antenna may not be just aesthetically unpleasing but also harmful to property values. Many also perceive health risks in proximity to radio frequency radiation emissions, despite industry assertions and other evidence disputing that such emissions pose a hazard.

Emotions are running so high in areas like Wantagh, where an application for six cell antennas on the Farmingdale Wantagh Jewish Center is pending, that the Town of Hempstead imposed a moratorium on applications until Sept. 21. That is the date for a public hearing on a new town ordinance stiffening requirements.

At a community meeting on Aug. 16 at Wantagh High School, Dave Denenberg, the Nassau county legislator for Bellmore, Wantagh and Merrick, told more than 200 residents that 160 cell antennas had been placed on telephone poles in the area in the last year by NextG, a wireless network provider.

“Everyone has a cellphone,” Mr. Denenberg said, “but that doesn’t mean you have to have cell installations right across the street from your house.” Under the old town code, installations over 30 feet high required an exemption or a variance. But in New York, wireless providers have public utility status, like LIPA and Cablevision, and they can bypass zoning boards.

Earlier this month in South Huntington, T-Mobile was ordered to take down a new 100-foot monotower erected on property deemed environmentally sensitive (and thus requiring a variance). Andrew J. Campanelli, a civil rights lawyer in Garden City, said a group of residents had hired him to oppose the cellular company’s application.

“They were worried about the property values,” Mr. Campanelli said. “If your home is near a cell antenna, the value of your property is going down at least 4 percent. Depending on the size of the tower and the proximity, it is going down 10 percent.”

In January, in an effort to dismantle 50 cell antennas on a water tower across from a school in the

village of Bayville, Mr. Campanelli filed a federal lawsuit that cited health risks and private property rights.

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In a statement, Dr. Anna F. Hunderfund, the Locust Valley superintendent, said that in February 2009 the district had engaged a firm to study the cellphone installations near the Bayville schools, finding that the tower “posed no significant health risks,” and she noted that the emission levels fell well below amounts deemed unsafe by the Federal Communications Commission.

In June 2009, Sharon Curry, a psychologist in Merrick, woke up to find a cell antenna abutting her backyard, level to her 8-year-old son’s bedroom window.

Puzzled by its presence, particularly because she lives next to an elementary school, she did research to see if there was cause for concern. What she learned about possible health impacts, she said, led her to seek help from civic associations and to form a group, Moms of Merrick Speak Out, to keep new cell towers out. She said she was seeking the “responsible” placement of cell antennas, away from homes and schools.

The Federal Communications Act of 1996 says health concerns are not a valid reason for a municipality to deny zoning for a cell tower or antenna. Property values and aesthetics, however, do qualify, according to the act.

Frank Schilero, an associate broker with RE/MAX Innovations in Wantagh, has a listing on a \$629,000 home down the street from the Farmingdale Wantagh Jewish Center, where the application is pending to put six cell antennas on the roof.

“People don’t like living next to cell towers, for medical reasons or aesthetics,” Mr. Schilero said. “Or they don’t want that eyesore sticking up in their backyards.” There is an offer on his listing, he added, but since the buyer heard about the possible cell antennas she has sought more information from the wireless companies about their size and impact.

Charles Kovit, the Hempstead deputy town attorney, said that under the proposed code change any new towers or antennas would have to be 1,500 feet from residences, schools, houses of worship and libraries.

The town recently hired a consultant, Richard A. Comi of the Center for Municipal Solutions in Glenmont, to review antenna applications.

Under the new ordinance, applications for wireless facilities would require technical evidence that they had a “gap” in coverage necessitating a new tower.

“If not, they will get denied,” Mr. Kovit said. The wireless companies would also have to prove that the selected location had “the least negative impact on area character and property values.” If another location farther away from homes can solve the gap problem, “they are going to have to move.”



County of Santa Cruz

COUNTY ADMINISTRATIVE OFFICE

701 OCEAN STREET, SUITE 520, SANTA CRUZ, CA 95060-4073

(831) 454-2100 FAX: (831) 454-3420 TDD: (831) 454-2123

SUSAN MAURIELLO, J.D., COUNTY ADMINISTRATIVE OFFICER

January 18, 2012

AGENDA: January 24, 2012

Board of Supervisors
County of Santa Cruz
701 Ocean Street
Santa Cruz, California 95060

SmartMeter Moratorium

Dear Members of the Board:

On December 13, 2011, your Board directed this office to return today with a report on issues associated with the current SmartMeter moratorium ordinance, and information on the possible extension of the moratorium for an additional year. Your Board also directed the Public Health Officer to return with an analysis of the research on the health effects of SmartMeters, and directed County Counsel to return with a report regarding the legality of a public utility refusing service to customers who are willing to pay for service and are willing to have an analog meter.

As your Board is aware, the California Public Utility Commission is considering PG&E's application for modification to PG&E's SmartMeter proposal to include an option for residential customers who do not wish to have a wireless SmartMeter. The item was scheduled on the January 12, 2012 agenda, but the commission anticipates that a vote on the proposal will not happen prior to February 1, 2012.

Moratorium Ordinance

Your Board has heard significant amounts of testimony regarding SmartMeters and concerns about their possible impact on health, questions about their accuracy, their inability to recover real-time data, privacy concerns, and the lack of safety standards for chronic long-term exposure to electromagnetic frequency radiation. In addition, PG&E has not presented studies to support their primary justification that the SmartMeter program will encourage customers to more effectively manage their utilization of electricity.

Given the broad concern about SmartMeter technology and your Board's desire to go on record, this office and County Counsel believe that notwithstanding the enforcement challenges, that it is in the best interest of public health, safety, and welfare for your Board to adopt the attached ordinance (Attachment A) implementing a temporary moratorium on the installation of SmartMeters in or on any home, apartment, condominium or business within the unincorporated area of the County. The purpose of the moratorium is to allow additional time to educate the CPUC about these concerns and allow time for adequate study of the impacts resulting from the SmartMeter technology.

PG&E, asserting that local governments do not have jurisdiction on the installation of the meters, has ignored the previous Santa Cruz County ordinance as well as similar ordinances adopted in other jurisdictions. PG&E believes that only the California Public Utilities Commission (CPUC) has the authority to stop installation of the meters. Elected representatives, including the Board of Supervisors of Marin County, have acknowledged the limits of their ordinances to actually stop the installation of the meters. However, jurisdictions have adopted their ordinances with statements that such ordinances play an important role by informing the CPUC of significant community concerns. 0378

Health Officer Report

The Public Health Officer's report is provided as Attachment B. The report discusses the health risks associated with SmartMeters, the scientific reports and actions the public might take to mitigate potential harm.

PG&E Shutoff Update

At the December 13, 2011, meeting, your Board questioned the PG&E representative about the utility company's decision to shut off power to the homes of residents who removed their SmartMeters. Subsequent to that meeting, PG&E restored power to those residences with the intent of charging them based on past electrical bills.

Petition

At your January 10, 2012 meeting, your Board was presented with a petition to the California Public Utilities Commission regarding PG&E SmartMeter Opt-out Application, (Petition A.11-03-014). The petition provides the opportunity for local elected officials to urge the Commission to continue Petition A.11-03-014 for further public hearings. The petition is provided as Attachment C. It is recommended that your Board direct the Chair to sign the petition on behalf of the Board and submit it to the PUC.

IT IS THEREFORE RECOMMENDED THAT YOUR BOARD:

- (1) Direct the Chair to send a letter to the PUC calling for independent testing and monitoring of SmartMeters in place to determine duty cycles and frequency, especially in the following circumstances
 - Where both gas and electric meters are located closely together
 - Where there is a bank of SmartMeters such as on a multi-family residential building or apartment building
 - Where there is a collector meter on a home that serves the home, plus as many as 5000 other residential units in the area
 - Where a SmartMeter on a home acts as a relay for other local neighborhood meters

- (2) Direct the Chair to send a letter to the PUC and PG&E allowing any Santa Cruz County resident to request removal of a previously installed SmartMeter and the replacement with an analog meter
- (3) Accept and file the report from the Public Health Officer
- (4) Direct the Chair to sign the petition to the California Public Utilities Commission on behalf of the Board urging the Commission to delay consideration of a preliminary decision on PG&E's SmartMeter application until further public hearing and input are completed, and
- (5) Adopt the attached ordinance imposing a temporary moratorium on the installation of SmartMeters within the unincorporated area of Santa Cruz County and direct the Clerk of the Board to place the ordinance on the February 7, 2012 agenda for final consideration.

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Very truly yours,



SUSAN A. MAURIELLO
County Administrative Officer
Attachments:

- A. Proposed Ordinance
- B. Report from Public Health Officer
- C. Petition to CPUC

cc: PG&E
California Public Utilities Commission

ORDINANCE NO. 5114**AN UNCODIFIED ORDINANCE OF THE COUNTY OF SANTA CRUZ
IMPOSING A TEMPORARY MORATORIUM ON THE INSTALLATION
OF SMARTMETERS AND RELATED EQUIPMENT IN, ALONG,
ACROSS, UPON, UNDER AND OVER THE PUBLIC STREETS AND
OTHER PLACES WITHIN THE UNINCORPORATED AREA OF SANTA
CRUZ COUNTY**

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The Board of Supervisors of the County of Santa Cruz find as follows:

WHEREAS, the County of Santa Cruz (the "County"), through its police powers granted by Article XI of the California Constitution, retains broad discretion to legislate for public purposes and for the general welfare, including but not limited to matters of public health, safety and consumer protection; and

WHEREAS, the County of Santa Cruz has a franchise agreement with PG&E that has been in effect since 1955; and

WHEREAS, in addition, the County retains authority under Article XII, Section 8 of the Constitution to grant franchises for public utilities, and pursuant to California Public Utilities Code section 6203, "may in such a franchise impose such other and additional terms and conditions..., whether governmental or contractual in character, as in the judgment of the legislative body are to the public interest;" and

WHEREAS, Public Utilities Code section 2902 reserves the County's right to supervise and regulate public utilities in matters affecting the health, convenience and safety of the general public, "such as the use and repair of public streets by any public utility, the location of the poles, wires, mains, or conduits of any public utility, on, under, or above any public streets, and the speed of common carriers operating within the limits of the municipal corporation;" and

WHEREAS, Pacific Gas & Electric Company ("PG&E") is now installing SmartMeters in Central and Northern California and is installing these meters within the County of Santa Cruz; and

WHEREAS, concerns about the impact and accuracy of SmartMeters have been raised nationwide, leading the Maryland Public Service Commission to deny permission on June 21, 2010 for the deployment of SmartMeters in that state. The State of Hawaii Public Utility Commission also recently declined to adopt a smart grid system in that state. The CPUC currently has pending before it a petition from the City and County of San Francisco, and other municipalities, seeking to delay

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the implementation of SmartMeters until the questions about their accuracy can be evaluated; and

WHEREAS, major problems and deficiencies with SmartMeters in California have been brought to the attention of the Board of Supervisors of the County of Santa Cruz, including PG&E's confirmation that SmartMeters have provided incorrect readings costing ratepayers untold thousands of dollars in overcharges and PG&E's records outlined "risks" and "issues" including an ongoing inability to recover real-time data because of faulty hardware originating with PG&E vendors; and

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WHEREAS, the ebb and flow of gas and electricity into homes discloses detailed information about private details of daily life. Energy usage data, measured moment by moment, allows the reconstruction of a household's activities: when people wake up, when they come home, when they go on vacation, and even when they take a hot bath. SmartMeters represent a new form of technology that relays detailed hitherto confidential information reflecting the times and amounts of the use of electrical power without adequately protecting that data from being accessed by unauthorized persons or entities and as such pose an unreasonable intrusion of utility customers' privacy rights and security interests. Indeed, the fact that the CPUC has not established safeguards for privacy in its regulatory approvals may violate the principles set forth by the U.S. Supreme Court in *Kyllo v. United States* (2001), 533 U.S. 27; and

WHEREAS, significant health questions have been raised concerning the increased electromagnetic frequency radiation (EMF) emitted by the wireless technology in SmartMeters, which will be in every house, apartment and business, thereby adding additional human-made EMF to our environment around the clock to the already existing EMF from utility poles, individual meters and telephone poles; and

WHEREAS, FCC safety standards do not exist for chronic long-term exposure to EMF or from multiple sources, and reported adverse health effects from electromagnetic pollution include sleep disorders, irritability, short term memory loss, headaches, anxiety, nausea, DNA breaks, abnormal cell growth, cancer, premature aging, etc. Because of untested technology, international scientists, environmental agencies, advocacy groups and doctors are calling for the use of caution in wireless technologies; and

WHEREAS, the primary justification given for the SmartMeters program is the assertion that it will encourage customers to move some of their electricity usage from daytime to evening hours; however, PG&E has conducted no actual pilot projects to determine whether this assumption is in fact correct. Non-transmitting time-of-day meters are already available for customers who desire

them, and enhanced customer education is a viable non-technological alternative to encourage electricity use time shifting. Further, some engineers and energy conservation experts believe that the SmartMeters program--in totality--could well actually increase total electricity consumption and therefore the carbon footprint; and

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WHEREAS, this Board of Supervisors sent a letter to the CPUC on September 15, 2010 expressing concern about reports that SmartMeter technology was interfering with the proper functioning of common household devices and requesting a response from the CPUC; and

WHEREAS, there has been no response by the CPUC to the letter sent by the Board of Supervisors; and

WHEREAS, because the potential risks to the health, safety and welfare of County residents are so great, the Board of Supervisors wishes to adopt a moratorium on the installation of SmartMeters and related equipment within the unincorporated area of the County of Santa Cruz. The moratorium period will allow the Council on Science and Technology and legislative process referenced above to be completed and for additional information to be collected and analyzed regarding potential problems with SmartMeters; and

WHEREAS, there is a current and immediate threat to public health, safety and welfare because, without this urgency ordinance, SmartMeters or supporting equipment will be installed or constructed or modified in the County without PG&E's complying with the CPUC process for consultation with the local jurisdiction, the County's Code requirements, and subjecting residents of Santa Cruz County to the privacy, security, health, accuracy and consumer fraud risks of the unproven SmartMeter technology; and

WHEREAS, the Board of Supervisors hereby finds that it can be seen with certainty that there is no possibility that the adoption and implementation of this Ordinance may have a significant effect on the environment. This Ordinance does not authorize construction or installation of any facilities and, in fact, imposes greater restrictions on such construction and installation in order to protect the public health, safety and general welfare. This Ordinance is therefore exempt from the environmental review requirements of the California Environmental Quality Act (CEQA) pursuant to Section 15061(b)(3) of Title 14 of the California Code of Regulations; and

WHEREAS, there is no feasible alternative to satisfactorily study the potential impact identified above as well or better with a less burdensome or restrictive effect than the adoption of this interim urgency moratorium ordinance; and

WHEREAS, based on the foregoing it is in the best interest of public health, safety and welfare to allow adequate study of the impacts resulting from the SmartMeter technology; therefore it is appropriate to adopt a temporary moratorium that would remain in effect from the date of its adoption until December 31, 2012, unless your Board acts to repeal it prior to that date.

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NOW, THEREFORE BE IT ORDAINED by the Board of Supervisors of the County of Santa Cruz as follows:

SECTION I

Moratorium. From and after the effective date of this Ordinance, no SmartMeter may be installed in or on any home, apartment, condominium or business of any type within the unincorporated area of the County of Santa Cruz, and no equipment related to SmartMeters may be installed in, on, under, or above any public street or public right of way within the unincorporated area of the County of Santa Cruz.

SECTION II

Violations of the Moratorium may be charged as infractions or misdemeanors as set forth in Chapter 1.12 of the Santa Cruz County Code. In addition, violations may be deemed public nuisances, with enforcement by injunction or any other remedy authorized by law.

SECTION III

This Board of Supervisors finds and determines that: (a) there is a current and immediate threat to the public peace, health, or safety; (b) the moratorium must be imposed in order to protect and preserve the public interest, health, safety, comfort and convenience and to preserve the public welfare; and (c) it is necessary to preserve the public health and safety of all residents or landowners adjacent to such uses as are affected by this interim ordinance as well as to protect all of the citizens of Santa Cruz County by preserving and improving the aesthetic and economic conditions of the County.

SECTION IV

If any provision of this interim ordinance is held to be unconstitutional, it is the intent of the Board of Supervisors that such portions of such ordinance are severable from the remainder and the remainder is given full force and effect.

SECTION V

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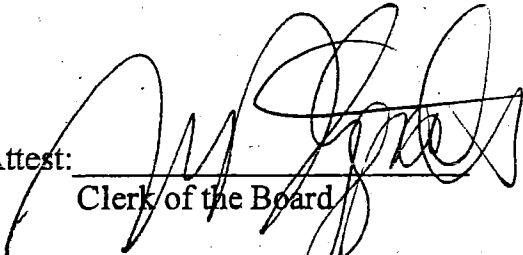
This interim ordinance is not subject to the California Environmental Quality Act (CEQA) pursuant to Section 15060(c) (2) – the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment and Section 15060(c) (3) – the activity is not a project as defined in Section 15378 of the CEQA Guidelines, because it has no potential for resulting in physical change to the environment, directly or indirectly.

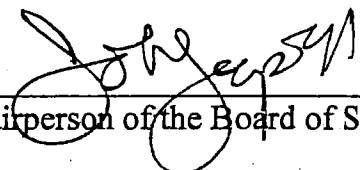
SECTION VI

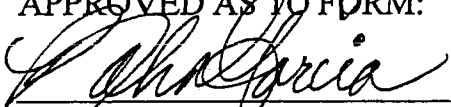
This ordinance shall take effect on the 31st day after the date of final passage.

PASSED AND ADOPTED THIS 7th day of February, 2012, by the Board of Supervisors of the County of Santa Cruz by the following vote:

AYES:	SUPERVISORS	Coonerty, Stone, Caput and Leopold
NOES:	SUPERVISORS	None
ABSENT:	SUPERVISORS	Pirie
ABSTAIN:	SUPERVISORS	None

Attest: 
Clerk of the Board


Chairperson of the Board of Supervisors

APPROVED AS TO FORM:

County Counsel



County of Santa Cruz 0257

HEALTH SERVICES AGENCY

POST OFFICE BOX 962, 1060 EMELINE AVE., SANTA CRUZ, CA 95061-0962
 TELEPHONE: (831) 454-4114 FAX: (831) 454-5049 TDD: (831) 454-4123

0385

Poki Stewart Namkung, M.D., M.P.H.
Health Officer
Public Health Division

Memorandum

Date: January 13, 2012
 To: Santa Cruz County Board of Supervisors
 From: Poki Stewart Namkung, M.D., M.P.H. *PSN*
 Health Officer
 Subject: Health Risks Associated With SmartMeters

Overview

On December 13, 2011, Santa Cruz County Board of Supervisors directed the Public Health Officer to return on January 24, 2012, with an analysis of the research on the health effects of SmartMeters.

Background

In order to analyze the potential health risks associated with SmartMeters, the following questions should be asked:

- 1) What is the SmartMeter system and what is the potential radiation exposure from the system?
- 2) What scientific evidence exists about the potential health risks associated with SmartMeters?
- 3) Are there actions that the public might take to mitigate any potential harm from SmartMeters?

SmartMeters are a new type of electrical meter that will measure consumer energy usage and send the information back to the utility by a wireless signal in the form of pulsed frequencies within the 800 MHz to 2400MHz range, contained in the microwave portion of the electromagnetic spectrum. SmartMeters are considered part of 'smart grid' technology that includes: a) a mesh network or series of pole-mounted wireless antennas at the neighborhood level to collect and transmit wireless information from all SmartMeters in that area back to the utility; b) collector meters, which are a special type of SmartMeter that collects the radiofrequency or microwave radiation signals from many surrounding

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buildings (500-5000 homes or buildings) and sends the information back to the utility; and c) proposed for the future, a power transmitter to measure the energy use of individual appliances (e.g. washing machines, clothes dryers, dishwasher, etc) and send information via wireless radio frequency signal back to the SmartMeter. The primary rationale for SmartMeters and grid networks is to more accurately monitor and direct energy usage.

The public health issue of concern in regard to SmartMeters is the involuntary exposure of individuals and households to electromagnetic field (EMF) radiation. EMFs are everywhere, coming from both natural and man-made sources. The three broad classes of EMF are:

- extremely low frequency, ELF (from the sun or powerlines)
- radio frequency, RF (from communication devices, wireless devices, and SmartMeters)
- extremely high frequency, known as ionizing radiation (x-rays and gamma rays)

Much of this exposure is beyond our control and is a matter of personal choice; however, public exposure to RF fields is growing exponentially due to the proliferation of cell phones, and wireless fidelity (Wi-Fi) technology. To understand the relationship between EMF from SmartMeters and other sources, it is helpful to view the electromagnetic spectrum:

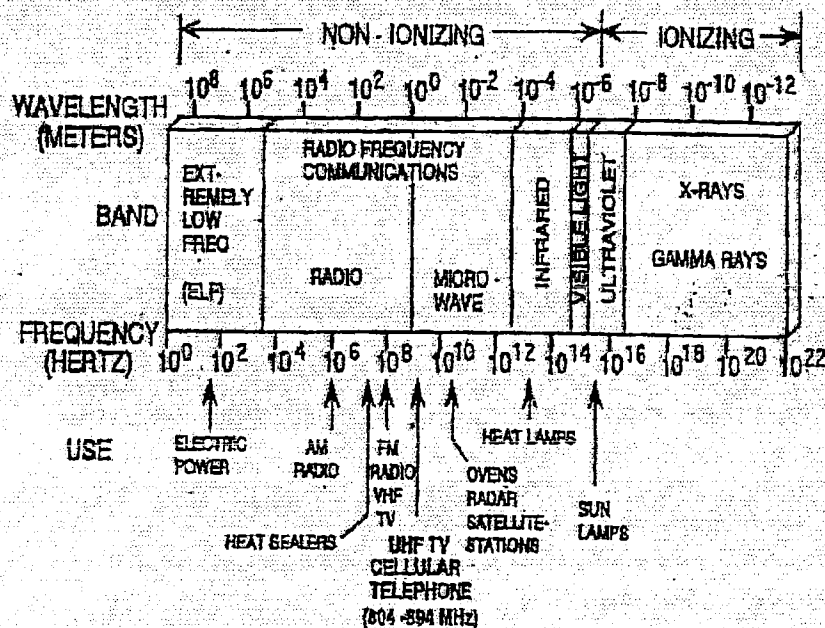


Fig. 1: The electromagnetic spectrum, showing the relations between ELF and RF fields, wavelength and frequency, and the ionizing and non-ionizing portions of the spectrum.

The Federal Communications Commission (FCC) has adopted limits for Maximum Permissible Exposure (MPE) that are based on exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP). The limits vary with

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the frequency of the electromagnetic radiation and are expressed in units of microwatts per centimeter squared. A SmartMeter contains two antennas whose combined time-averaged public safety limit of exposure is $655\mu\text{W}/\text{cm}^2$ (Sage, 2011). According to the California Council on Science and Technology (CCST) Report (2011), within distances of three to ten feet, SmartMeters would not exceed this limit. However, CCST did not account for the frequency of transmissions, reflection factors, banks of SmartMeters firing simultaneously, and distances closer than three feet. There are numerous situations in which the distance between the SmartMeters and humans is less than three feet on an ongoing basis, e.g. a SmartMeter mounted on the external wall to a bedroom with the bed placed adjacent to that mounting next to the internal wall. That distance is estimated to be one foot. The CCST Report also states that SmartMeters will generally transmit data once every four hours, and once the grid is fully functional, may transmit "more frequently." It has been aptly demonstrated by computer modeling and real measurement of existing meters that SmartMeters emit frequencies almost continuously, day and night, seven days a week. Furthermore, it is not possible to program them to not operate at 100% of a duty cycle (continuously) and therefore it should not be possible to state that SmartMeters do not exceed the time-averaged exposure limit. Additionally, exposure is additive and consumers may have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices such as cell and cordless phones, personal digital assistants (PDAs), routers for internet access, home security systems, wireless baby surveillance (baby monitors) and other emerging devices. It would be impossible to know how close a consumer might be to their limit, making safety a uncertainty with the installation of a mandatory SmartMeter.

This report will focus on the documented health risks of EMF in general, the relevance of that data to SmartMeters exposure, the established guidelines for RF safety to the public at large, and then provide recommendations to ameliorate the risk to the public's health.

Evidence-based Health Risks of EMFs

There is no scientific literature on the health risks of SmartMeters in particular as they are a new technology. However, there is a large body of research on the health risks of EMFs. Much of the data is concentrated on cell phone usage and as SmartMeters occupy the same energy spectrum as cell phones and depending on conditions, can exceed the whole body radiation exposure of cell phones (see Attachment B1, Figure 4). In terms of health risks, the causal factor under study is RF radiation whether it be from cell phones, Wi-Fi routers, cordless phones, or SmartMeters. Therefore all available, peer-reviewed, scientific research data can be extrapolated to apply to SmartMeters, taking into consideration the magnitude and the intensity of the exposure.

Since the mid-1990's the use of cellular and wireless devices has increased exponentially exposing the public to massively increased levels of RF. There is however, debate regarding the health risks posed to the public given these increased levels of radiation. It must be noted that there is little basic science funding for this type of research and it is largely funded by industry. An intriguing divide, noted by Genuis, 2011 is that most

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research carried out by independent non-government or non-industry affiliated researchers suggests potentially serious effects from many non-ionizing radiation exposures; most research carried out by independent non-government or non-industry affiliated researchers suggests potentially serious effects from many non-ionizing radiation exposures research funded by industry and some governments seems to cast doubt on the potential for harm. Elements of the controversy stem from inability to replicate findings consistently in laboratory animal studies. However, analysis of many of the conflicting studies is not valid as the methodology used is not comparable. Despite this controversy, evidence is accumulating on the results of exposure to RF at non-thermal levels including increased permeability of the blood-brain barrier in the head (Eberhardt, 2008), harmful effects on sperm, double strand breaks in DNA which could lead to cancer genesis (Phillips, 2011), stress gene activation indicating an exposure to a toxin (Blank, 2011), and alterations in brain glucose metabolism (Volkow, 2011).

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In terms of meta-analyzed epidemiological studies, all case-control epidemiological studies covering >10 years of cell phone use have reported an increased risk of brain tumors from the use of mobile phones (Hallberg, 2011). Other studies have pointed to an increasing risk of acoustic neuroma, salivary gland tumors, and eye cancer after several years of cell phone use and the tumors occur predominantly on the same side of the head as the phone is used. The analysis of brain cancer statistics since the mid 20th century in several countries reveals that brain tumor formation has a long latency time, an average of over 30 years to develop from initial damage. (Hallberg, 2011). Therefore using studies such as the Interphone Study which looked at shorter latency periods for the development of specific brain cancers will result in inconclusive data.

Another potential health risk related to EMF exposure, whose legitimacy as a phenomenon remains contentious, is electromagnetic hypersensitivity (EHS). In the 1950's, various centers in Eastern Europe began to describe and treat thousands of workers, generally employed in jobs involving microwave transmission. The afflicted individuals often presented with symptoms such as headaches, weakness, sleep disturbance, emotional instability, dizziness, memory impairment, fatigue, and heart palpitations. Clinical research to verify the physiological nature of this condition did not begin in earnest until the 1990's and found that the EMF involved was usually within the non-ionizing range of the electromagnetic spectrum. In the early 2000's, estimates of the occurrence of EHS began to swell with studies estimating the prevalence of this condition to be about 1.5% of the population of Sweden (Hilleert et al., 2002), 3.2% in California (Levallios et al., 2002), and 8% in Germany (infas Institut für angewandte Sozialwissenschaft GmbH, 2003).

In 2004, WHO declared EHS "a phenomenon where individuals experience adverse health effect while using or being in the vicinity of devices emanating electric, magnetic, or electromagnetic fields (EMFs). . . Whatever its cause, EHS is a real and sometimes debilitating problem for the affected persons (Mild et al., 2004)."

Currently, research has demonstrated objective evidence to support the EHS diagnosis, defining pathophysiological mechanisms including immune dysregulation in vitro, with

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increased production of selected cytokines and disruption and dysregulation of catecholamine physiology (Genuis, 2011).

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Until recently, the diagnosis of EHS has not received much support from the medical community due to lack of objective evidence. In an effort to determine the legitimacy of EHS as a neurological disorder, however, a collection of scientists and physicians recently conducted a double-blinded research study that concluded that "EMF hypersensitivity can occur as a bona fide environmentally-inducible neurological syndrome (McCarty et al., 2011).

Safety Guidelines

The guidelines currently used by the FCC were adopted in 1996, are thermally based, and are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock. FCC guidelines have a much lower certainty of safety than standards. Meeting the current FCC guidelines only assures that one should not have heat damage from SmartMeter exposure. It says nothing about safety from the risk of many chronic diseases that the public is most concerned about such as cancer, miscarriage, birth defects, semen quality, autoimmune diseases, etc. Therefore, when it comes to nonthermal effects of RF, FCC guidelines are irrelevant and cannot be used for any claims of SmartMeter safety unless heat damage is involved (Li, 2011).

There are no current, relevant public safety standards for pulsed RF involving chronic exposure of the public, nor of sensitive populations, nor of people with metal and medical implants that can be affected both by localized heating and by electromagnetic interference (EMI) for medical wireless implanted devices. Many other countries (9) have significantly lower RF/MW exposure standards ranging from 0.001 to 50 $\mu\text{W}/\text{cm}^2$ as compared with the US guideline of 200-1000 $\mu\text{W}/\text{cm}^2$. Note that these recommended levels are considerably lower than the approximately 600 $\mu\text{W}/\text{cm}^2$ (time-averaged) allowed for the RFR from SmartMeters operating in the low 900 MHz band mandated by the FCC based on only thermal consideration.

In summary, there is no scientific data to determine if there is a safe RF exposure level regarding its non-thermal effects. The question for governmental agencies is that given the uncertainty of safety, the evidence of existing and potential harm, should we err on the side of safety and take the precautionary avoidance measures? The two unique features of SmartMeter exposure are: 1) universal exposure thus far because of mandatory installation ensuring that virtually every household is exposed; 2) involuntary exposure whether one has a SmartMeter on their home or not due to the already ubiquitous saturation of installation in Santa Cruz County. Governmental agencies for protecting public health and safety should be much more vigilant towards involuntary environmental exposures because governmental agencies are the only defense against such involuntary exposure. Examples of actions that the public might take to limit exposure to electromagnetic radiation can be found in Attachment B2.

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Figure 4 from Hirsch, 2011

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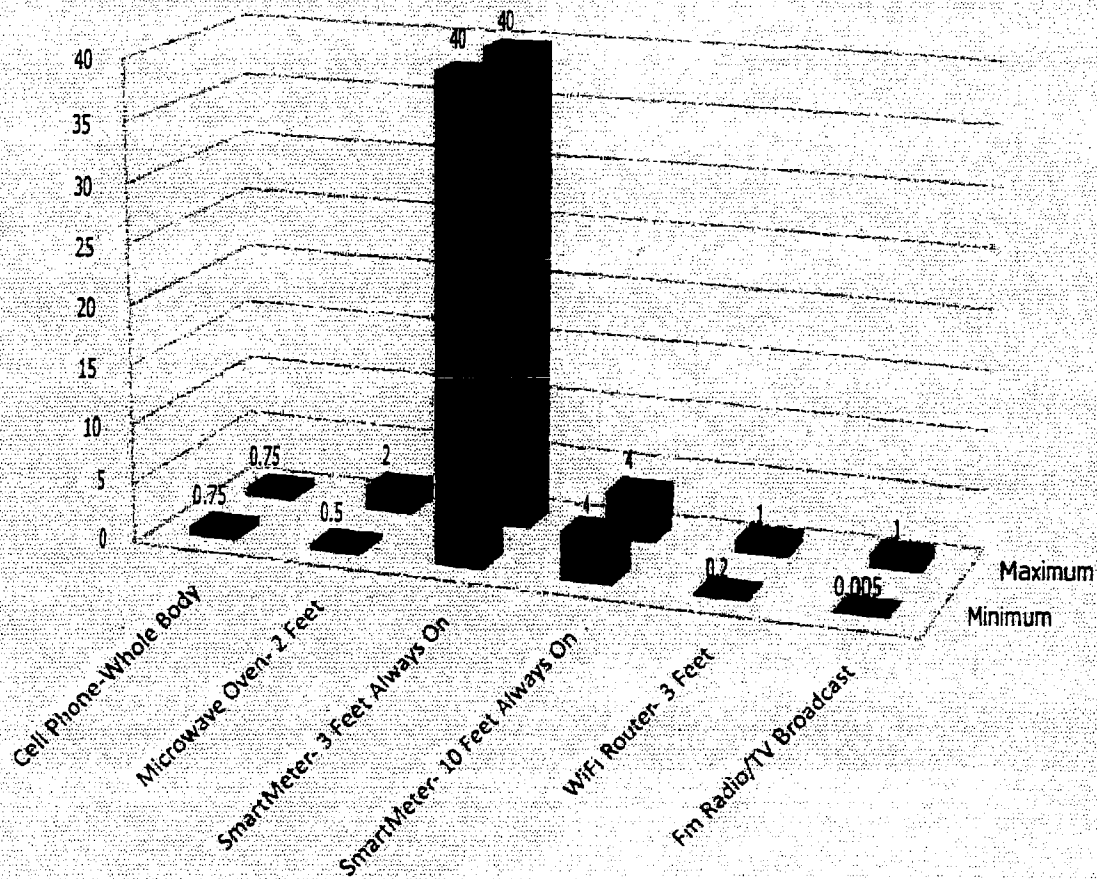


Figure 4. Comparison of Radio-Frequency Levels to the Whole Body from Various Sources in $\mu\text{W}/\text{cm}^2$ over time [corrected for assumed duty cycle and whole body exposure extrapolated from EPRI/CCST SmartMeter estimated levels at 3 feet].

Examples of strategies to reduce electromagnetic radiation.

(Genuis SJ, 2011)

Sources of adverse EMR	Considerations to reduce EMR exposure
Cell phones and cordless phones	<ul style="list-style-type: none"> • Minimize use of cell and cordless phones and use speaker phones when possible • Leave cell or cordless phone away from the body rather than in pocket or attached at the hip
Wireless internet	<ul style="list-style-type: none"> • Use wired internet • Turn off the internet router when not in use (e.g. night-time) • Use power line network kits to achieve internet access by using existing wiring and avoiding wireless emissions.
Computers releasing high EMR	<ul style="list-style-type: none"> • Limit the amount of time spent working on a computer • Avoid setting a laptop computer on the lap • Increase the distance from the transformer. • Stay a reasonable distance away from the computer
Handheld electronics (electric toothbrush, hair dryer, Smart phone, electronic tablets, etc.)	<ul style="list-style-type: none"> • Limit the use of electronics and/or revert to using power-free devices • Turn devices off before going to sleep • Minimize electronics in bedrooms
Fluorescent lights	<ul style="list-style-type: none"> • Consider using alternate lighting such as incandescent (Uncertainty exists about the safety of LED lights) • Rely on natural sunlight for reading
Household power	<ul style="list-style-type: none"> • Measure levels of EMR and modify exposures as possible • Avoid sleeping near sites of elevated EMR • Filters can be used to mitigate dirty power
High voltage power lines substations, transmission towers, and emitters (cell phone tower, radar, etc.)	<ul style="list-style-type: none"> • Consider relocating to an area not in close proximity to high voltage power lines • Maintain considerable distance from emitters • Consider forms of shielding (shielding paints; grounded metal sheets)
Utility neutral-to-ground bonded to water pipes	<ul style="list-style-type: none"> • Increase size of neutral-wire to substation and install dielectric coupling in water pipe.

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Looming Health Crisis: Wireless Technology and the Toxification of America

James F. Tracy, Before It's News, May 17, 2013

As a multitude of hazardous wireless technologies are deployed in homes, schools and workplaces, government officials and industry representatives continue to insist on their safety despite growing evidence to the contrary. A major health crisis looms that is only hastened through the extensive deployment of "smart grid" technology.

In October 2009 at Florida Power and Light's (FPL) solar energy station President Barack Obama announced that \$3.4 billion of the American Reinvestment and Recovery Act would be devoted to the country's "smart energy grid" transition. Matching funds from the energy industry brought the total national Smart Grid investment to \$8 billion. FPL was given \$200 million of federal money to install 2.5 million "smart meters" on homes and businesses throughout the state.[1]

By now many residents in the United States and Canada have the smart meters installed on their dwellings. Each of these meters is equipped with an electronic cellular transmitter that uses powerful bursts of electromagnetic radiofrequency (RF) radiation to communicate with nearby meters that together form an interlocking network transferring detailed information on residents' electrical usage back to the utility every few minutes or less. Such information can easily be used to determine individual patterns of behavior based on power consumption.

The smart grid technology is being sold to the public as a way to "empower" individual energy consumers by allowing them to access information on their energy usage so that they may eventually save money by programming

"smart" (i.e, wireless enabled) home appliances and equipment that will coordinate their operability with the smart meter to run when electrical rates are lowest. In other words, a broader plan behind smart grid technology involves a tiered rate system for electricity consumption that will be set by the utility to which customers will have no choice but to conform.

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Because of power companies' stealth rollout of smart meters a large majority of the public still remains unaware of the dangers they pose to human health. This remains the case even though states such as Maine have adopted an "opt out" provision for their citizens. The devices have not been safety-tested by Underwriters Laboratory and thus lack the UL approval customary for most electronics.[2] Further, power customers are typically told by their utilities that the smart meter only communicates with the power company "a few times per day" to transmit information on individual household energy usage. However, when individuals obtained the necessary equipment to do their own testing they found the meters were emitting bursts of RF radiation throughout the home far more intense than a cell phone call *every minute or less*. [3]

America's Telecom-friendly Policy for RF Exposure

A growing body of medical studies is now linking cumulative RF exposure to DNA disruption, cancer, birth defects, miscarriages, and autoimmune diseases. Smart meters significantly contribute to an environment already polluted by RF radiation through the pervasive stationing of cellular telephone towers in or around public spaces and consumers' habitual use of wireless technologies. In the 2000 Salzburg Resolution European scientists recommended the maximum RF exposure for humans to be no more than one tenth of a microwatt per square centimeter. In the United States RF exposure limits are 1,000 microwatts per centimeter, with no limits for long term exposure.[4] Such lax standards have been determined by outdated science and the legal and regulatory maneuvering of the powerful telecommunications and wireless industries.

The Environmental Protection Agency (EPA) ceased studying the health effects of radiofrequency radiation when the Senate Appropriations Committee cut the department's funding and forbade it from further research into the area.[5] Thereafter RF limits were codified as mere "guidelines" based on the EPA's tentative findings and are to this day administered by the Federal Communications Commission (FCC).

These weakly enforced standards are predicated on the alleged "thermal effect" of RF. In other words, if the energy emitted from a wireless antenna or device is not powerful enough to heat the skin or flesh then no danger is posed to human health.[6] This reasoning is routinely put forward by utilities installing smart meters on residences, telecom companies locating cellular

transmission towers in populated areas, and now school districts across the US allowing the installation of cell towers on school campuses.[7]

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The FCC's authority to impose this standard was further reinforced with the passage of the 1996 Telecommunications Act that included a provision lobbied for by the telecom industry preventing state and local governments from evaluating potential environmental and health effects when locating cell towers "so long as 'such facilities comply with the FCC's regulations concerning such emissions.'"[8]

In 2001 an alliance of scientists and engineers with the backing of the Communications Workers of America filed a federal lawsuit hoping the Supreme Court would reconsider the FCC's obsolete exposure guidelines and the Telecom Act's overreach into state and local jurisdiction. The high court refused to hear the case. When the same group asked the FCC to reexamine its guidelines in light of current scientific studies the request was rebuffed.[9] Today in all probability millions are suffering from a variety of immediate and long-term health effects from relentless EMF and RF exposure that under the thermal effect rationale remain unrecognized or discounted by the telecom industry and regulatory authorities alike.

Growing Evidence of Health Risks From RF Exposure

The main health concern with electromagnetic radiation emitted by smart meters and other wireless technologies is that EMF and RF cause a breakdown in the communication between cells in the body, interrupting DNA repair and weakening tissue and organ function. These are the findings of Dr. George Carlo, who oversaw a comprehensive research group commissioned by the cell phone industry in the mid-1990s.

When Carlo's research began to reveal how there were indeed serious health concerns with wireless technology, the industry sought to bury the results and discredit Carlo. Yet Carlo's research has since been upheld in a wealth of subsequent studies and has continuing relevance given the ubiquity of wireless apparatuses and the even more powerful smart meters. "One thing all these conditions have in common is a disruption, to varying degrees, of intercellular communication," Carlo observes. "When we were growing up, TV antennas were on top of our houses and such waves were up in the sky. Cell phones and Wi-Fi have brought those things down to the street, integrated them into the environment, and that's absolutely new." [10]

In 2007 the BioInitiative Working Group, a worldwide body of scientists and public health experts, released a 650-page document with over 2000 studies linking RF and EMF exposure to cancer, Alzheimer's disease, DNA damage, immune system dysfunction, cellular damage and tissue reduction.[11]

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In May 2011 the World Health Organization's International Agency for Research on Cancer categorized "radiofrequency electromagnetic fields as possibly carcinogenic to humans based on an increased risk for glioma, a malignant type of brain cancer, associated with wireless cellphone use." [12]

In November 2011 the Board of the American Academy of Environmental Medicine (AAEM), a national organization of medical and osteopathic physicians, called on California's Public Utilities Commission to issue a moratorium on the continued installation of smart meters in residences and schools "based on a scientific assessment of the current available literature."

"[E]xisting FCC guidelines for RF safety that have been used to justify installations of smart meters," the panel wrote,

"only look at thermal tissue damage and are obsolete, since many modern studies show metabolic and genomic damage from RF and ELF exposure below the level of intensity which heats tissues ... More modern literature shows medically and biologically significant effects of RF and ELF at lower energy densities. These effects accumulate over time, which is an important consideration given the chronic nature of exposure from 'smart meters.'" [13]

In April 2012 the AAEM issued a formal position paper on the health effects of RF and EMF exposure based on a literature review of the most recent research. The organization pointed to how government and industry arguments alleging the doubtful nature of the science on non-thermal effects of RF were not defensible in light of the newest studies. "Genetic damage, reproductive defects, cancer, neurological degeneration and nervous system dysfunction, immune system dysfunction, cognitive effects, protein and peptide damage, kidney damage, and developmental effects have all been reported in the peer-reviewed scientific literature," AAEM concluded.[14]

Radiating Children

The rollout of smart meters proceeds alongside increased installation of wireless technology and cell phone towers in and around schools in the US. In 2010 Professor Magda Havas conducted a study of schools in 50 US state capitols and Washington DC to determine students' potential exposure to nearby cell towers. A total 6,140 schools serving 2.3 million students were surveyed using the antennasearch.com database. Of these, 13% of the schools serving 299,000 students have a cell tower within a quarter mile of school grounds, and another 50% of the schools where 1,145,000 attend have a tower within a 0.6 mile radius. The installation of wireless networks and now smart meters on and around school properties further increases children's RF exposure.[15]

Many school districts that are strapped for cash in the face of state budget cuts are willing to ignore the abundance of scientific research on RF dangers and sign on with telecom companies to situate cell towers directly on school premises. Again, the FCC's thermal effect rule is invoked to justify tower placement together with a disregard of the available studies.

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The School District of Palm Beach County, the eleventh largest school district in the US, provides one such example. Ten of its campuses already have cell towers on their grounds while the district ponders lifting a ban established in 1997 that would allow for the positioning of even more towers. When concerned parents contacted the school district for an explanation of its wireless policies, the administration assembled a document, "Health Organization Information and Academic Research Studies Regarding the Health Effects of Cell Tower Signals." The report carefully selected pronouncements from telecom industry funded organizations such as the American Cancer Society and out-of-date scientific studies supporting the FCC's stance on wireless while excluding the long list of studies and literature reviews pointing to the dangers of RF and EMF radiation emitted by wireless networks and cell towers. [16]

The Precautionary Principle / Conclusion

Surrounded by the sizable and growing body of scientific literature pointing to the obvious dangers of wireless technology, utility companies installing smart meters on millions of homes across the US and school officials who accommodate cell towers on their grounds are performing an extreme disservice to their often vulnerable constituencies. Indeed, such actions constitute the reckless long term endangerment of public health for short term gain, sharply contrasting with more judicious decision making.

The 1992 Rio Declaration on Environment & Development adopted the precautionary principle as a rule to follow in the situations utilities and school districts find themselves in today. "Where there are threats of serious or irreversible damage lack of full scientific certainty shall not be used as a reason for postponing cost effective measures to prevent environmental degradation." [17] In exercising the precautionary principle, public governance and regulatory bodies should "take preventive action in the face of scientific uncertainty to prevent harm. The focus is no longer on measuring or managing harm, but preventing harm." [18]

Along these lines, the European Union and the Los Angeles School District have prohibited cell phone towers on school grounds until the scientific research on the human health effects of RF are conclusive. The International Association of Fire Fighters also interdicted cell towers on fire stations

pending “a study with the highest scientific merit and integrity on health effects of exposure to low-intensity [radio frequency/microwave] radiation is conducted and it is proven that such sitings are not hazardous to the health of our members.”[19] 0400

Unwitting families with smart meters on their homes and children with cell towers humming outside their classrooms suggest the extent to which the energy, telecom and wireless industries have manipulated the regulatory process to greatly privilege profits over public health. Moreover, it reveals how the population suffers for want of meaningful and conclusive information on the very real dangers of RF while the telecom and wireless interests successfully cajole the media into considering one scientific study at a time.

“When you put the science together, we come to the irrefutable conclusion that there’s a major health crisis coming, probably already underway,” George Carlo cautions. “Not just cancer, but also learning disabilities, attention deficit disorder, autism, Alzheimer’s, Parkinson’s, and psychological and behavioral problems—all mediated by the same mechanism. That’s why we’re so worried. Time is running out.”[20]

Notes

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[2] Ilya Sandra Perlingieri, “Radiofrequency Radiation: The Invisible Hazards of Smart Meters,” August 19, 2011, GlobalResearch.ca, <http://www.globalresearch.ca/index.php?context=va&aid=26082>

[3] Dr. Bill Deagle, “Smart Meters: A Call for Public Outrage,” Rense.com, August 30, 2011, <http://www.rense.com/general94/smartt.htm>. Some meters installed in California by Pacific Gas and Electric carry a “switching mode power-supply” that ‘emit sharp spikes of millisecond bursts’ around the clock and is a chief cause of ‘dirty electricity.’” See Perlingieri, “Radiofrequency Radiation: The Invisible Hazards of Smart Meters.” This author similarly measured bursts of radiation in excess of 2,000 microwatts per meter every 30 to 90 seconds during the day, and once every two-to-three minutes at night.

[4] Magda Havas, BRAG Antenna Ranking of Schools, 2010, http://electromagnetichealth.org/wp-content/uploads/2010/04/BRAG_Schools.pdf

[5] Susan Luzzaro, “Field of Cell Phone Tower Beams,” *San Diego Reader*, May 18, 2011, <http://www.sandiegoreader.com/news/2011/may/18/citylights2-cell-phone-tower/?page=1&>

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[16] Donna Goldstein, "Health Organization Information and Academic Research Studies Regarding the Health Effects of Cell Tower Signals," Planning and Real Estate Development, Palm Beach County School District, January 30, 2012.

[17] Havas, BRAG Antenna Ranking of Schools, 17.

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James F. Tracy is Associate Professor of Media Studies at Florida Atlantic University. He is an affiliate of Project Censored and blogs at memorygap.org.

<http://beforeitsnews.com/alternative/2013/05/looming-health-crisis-wireless-technology-and-the-toxification-of-america-3-2652510.html>

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Joel M. Moskowitz, Ph.D.

Director, Center for Family and Community Health
School of Public Health, University of California, Berkeley
Center: <http://cfch.berkeley.edu>

Electromagnetic Radiation Safety

Website: <http://saferemr.blogspot.com>

Facebook: <http://www.facebook.com/SaferEMR>

News Releases: <http://pressroom.prlog.org/jmm716>

Twitter: @berkeleyprc

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Americans Beware:

Nationwide Violations of FCC Radiation Limits at Wireless Antenna Sites

0403

MARSHFIELD, VT--(Marketwire - Mar 20, 2013) - **The EMRadiation Policy Institute (EMRPI) releases Videos revealing the FCC's failure to protect Americans from wireless radiofrequency (RF) radiation.**

US workers and families are at risk of overexposure to RF at hazardous levels. **Hundreds of wireless industry-operated antenna sites from Maine to California have been tested by EMRPI and found to be in gross violation -- up to and in excess of 600% -- of the FCC's public exposure limits.** These sites include rooftops as well as locations where the general public, including children, can gain access, and where workers are on the job. See: Wireless Industry Safety Failure I

Wireless Radiation Can Harm Health.

Public health is threatened by wireless radiation exposure at current FCC lawful limits as they are among the least protective in the world. FCC safety limits do not acknowledge current science, nor the 2011 WHO IARC's classification of wireless radiation as a Group 2B carcinogen. The FCC does not even enforce its own inadequate radiation limits.

FCC Fails to Enforce Its Own Wireless Radiation Limits.

EMRPI informed FCC Chairman Julius Genachowski in December 2011 of widespread FCC rules violations. Despite detailed complaint letters sent to FCC Enforcement Bureau Chief P. Michele Ellison, of RF safety violations in 23 states across all regions of the US, EMRPI has received no response that the FCC has taken any enforcement action against any noncompliant site. EMRPI's investigation re-tested sites and found violations still occurring months after EMRPI's initial filings with the FCC. The FCC responded to a US Senator's

inquiry on sites in her state with misleading information about the safety of the Senator's constituents. See: Wireless Industry Safety Failure II

Are the FCC and the Wireless Industry Turning a Blind Eye to RF Violations?

FCC policy allows wireless companies to self-report their compliance with the lawful RF limits. The FCC website provides no information or procedures for either the public or workers to report potential or actual violations. Despite hundreds of thousands of wireless antenna sites across the US, since 1996 the FCC has issued only one wireless Notice of Violation, and not until 2010. Is FCC policing site violations and are violations hidden from the public?

The American Public Is Not Protected.

Congress must act to hold the FCC accountable. If not, Americans will remain at risk from unlawful RF radiation exposures at antenna sites across the country. The American people have a right to know and a right to be protected. EMRPI urges the American people to demand that the FCC enforce its own RF safety limits to protect all Americans.

Contact US Senators

at: http://www.senate.gov/general/contact_information/senators_cfm.cfm

Contact US House Members at: <http://www.house.gov/representatives/>

Contact Information

Contact:

Janet Newton

(802)426-3035

JNewton@emrpolity.org

President

The EMRadiation Policy Institute

0404

WHY OUR WORLD IS ELECTROPOLLUTED

11:00 pm March 1, 2012 • by Helke Ferrie

0405

(Ed note: This is the first of a 2-part series on Electropollution. The second part, to run in April Vitality, will focus on solutions.)

If something is invented by and for the military, it is certain to be effective and lethal. And industrial capitalists invariably view such military gizmos as having great profit potential – particularly if they're re-packaged and promoted as beneficial to the public. Hence, the science behind atom bombs dropped on Japan in World War II led soon after to cancer radiation therapy and mammography – two of the most lucrative practices in modern medicine. Similarly, biological warfare weapons such as DDT and chemotherapy proved to be enormously lucrative in their peace-time applications – their deadly properties being undiminished despite re-packaging. Originally, the military objected to the declassification of both, but industry interests prevailed.

Today, it's World War II radar technology that has been harnessed to create a near universal addiction and worldwide dependence on telecommunications. Anything that facilitates and enhances the human ability to communicate plugs into a powerful primal urge.

We can say no to radiation and chemotherapy, and we can do perfectly well without pesticides – but we cannot do without telephones, the internet, or electricity. Millions of people use cell phones as if they were an indispensable body part; thousands of households use microwave ovens daily, unaware that they are ruining the nutrients in their food; well-meaning parents irradiate their infants with baby monitors; and most of us are zapped continuously by smart meters. All things wireless have taken the world by storm, supposedly serving progress.

Very few people know that all these gadgets are allowed to proliferate on the basis of outright fraudulent research. Most don't know that current safety standards are so completely at variance with genuine scientific evidence as to be truly absurd: in fact, our regulatory authorities are supporting the unfolding of a public health disaster. There simply is no research proving the safety of this technology as we know it. None at all.

NO GENUINE SAFETY TESTING CONDUCTED

Wireless technology has undergone no genuine safety tests because existing standards only apply to anything above 2.4 gigahertz of the radio spectrum, and anything below that level was simply assumed safe when commercial standards were adopted in 1997. This rests on the assumption that non-thermal radiation is harmless; non-thermal means not-heat producing. Radio waves and microwaves do produce heat, but only at very high concentrations. At low concentrations they do not produce heat but, instead, cause other equally serious problems affecting all organs of the body.

This problem started with Hermann Schwan, inventor of the microwave oven. As a scientist who worked for the Nazi regime, he was brought to the U.S. in 1947 along with 1,400 others under "Operation Paperclip" which allowed them to escape war crime prosecution in return for employment with the U.S. government. Schwan became a professor in Pennsylvania and continued radar research. He believed that radio and microwaves could only be harmful at

intensities above 100 microwatts per square centimeter when they produce heat. He added a safety factor of 10, and in 1953 announced the safety limit for humans at 10 microwatts per square centimeter (10 mW/cm²) which in 1965 was accepted as doctrine.

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This "safe" level allowed the military to continue using radiation for their own purposes. This standard also saved the U.S. government untold millions in liability payments to injured soldiers and industrial workers from the war years and provided liability protection into the future. And real estate companies were delighted because the former restrictions on developing land too close to radiation facilities no longer applied. Had the already known facts about harm from non-thermal levels of radiation informed the making of this safety standard, some 498,000 acres of valuable real estate would have been lost to the market. (See Becker and Brodeur listed at end.)

Schwan and the scientists of his generation already knew of the "radiation sickness" reported by wartime radar technicians who often became blind from cataracts. Indeed, it was because of these reports that the discussion about a need for a safety standard began. At the very time that Schwan's standard was developed, the Soviets were microwaving the U.S. embassy staff in Moscow to see if this wartime radar/microwave technology could disrupt information, addle brains, and mess with behaviour among the embassy staff. It sure did. The U.S. government was fully aware of this Soviet espionage project, but kept silent for years – just to see what would happen. After all, it was a perfect science project (for the sake of which the glaring ethical inconsistency with the 1940s US-led Nuernberg trials was conveniently ignored). The Germans doing medical experiments on people was evil; this project, however, could be massaged to aid some greater good. The U.S. ambassador died of cancer and many staff members developed those forms of cancer, birth defects, infertility and more which are characteristic of non-thermal radiation exposure. Not until 1976 did this government betrayal of its own staff become the subject of congressional investigation.

UNIVERSAL RISK TO ALL HUMANS

Today, the complete bibliography of more than 2,000 scientific reports on non-thermal radiation damage compiled before 1970 are available. They were declassified by the military in 1971 (see <http://www.magdahavas.com>).

When cell phones hit the market in the early 1990's and WiFi for computers was invented, it was already known what damage these products were capable of causing. Most importantly, that early literature, now supported by an ever-growing body of high-tech and epidemiological research, negates the assertion that just "some" people are "hypersensitive". That same myth was used for decades to downplay Multiple Chemical Sensitivity as well. The profit from war gadgets, communication technology, and pesticides is simply too big to resist; better to blame those few weirdos who stand in the way of profit.

To put this "hypersensitivity" of the few into perspective, consider Swedish and American research published last fall which shows that within the coming decade we are likely to face a 25-fold increase of brain cancer incidence worldwide. There is no way that any government or insurance company can pay for this. Not surprisingly, two of the world's largest insurance companies, Lloyds and Swiss Re, have recommended exclusion clauses to the entire industry for damage from long-term use of such radiation-producing gadgets.

RESEARCH ON THE DANGERS OF EMF SUPPRESSED BY INDUSTRY AND GOVERNMENT

Researchers have found that cell phone use impairs DNA cellular repair, and has caused a sharp rise in brain cancer (documented from cell phone use over the past decade). The facts became so unavoidable that the usually arch-conservative World Health Organization had no choice last summer but to declare radiofrequency electromagnetic fields (RE-EMF) produced by cell phones, Bluetooth, cordless phones, Smart Meters, baby monitors, and WiFi to be a Class B carcinogen (like asbestos and DDT).

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True, the actual mechanism by which this low-level radiation caused harm was not understood in the 1940's, even though the fact of harm was known and documented. Today, our understanding is so thorough, it exceeds the evidence we have of the harm done by DDT, asbestos, and smoking by far. Yet, the International Commission on Non-Ionizing Radiation Protection (ICNIRP), established in 1992, continues to stick to Schwann's standard and even deliberately misquotes, disguises, or ignores this enormous body of knowledge. It continues to provide guidelines to governments and industry based on research published before WiFi technology had even left the laboratory and become commercially available. To support these absurd guidelines, even fraudulent research projects were undertaken in the UK (see Mark Anslow).

In Canada an interesting case of suppression of evidence exists in the federal Report LTR-CS-98 of April 1973. It provided the evidence that microwave radiation is an "environmental pollutant" and a "threat to human health." And yet Health Canada established its Code 6 by following ICNIRP guidelines for radio frequencies and publicly repeated the propaganda about non-thermal radiation being safe as recently as September 2010.

The many international resolutions presented by scientists to governments the world over demanding the public be protected from this technology are simply ignored, but their urgency is increasing. When cell phones first became available in the early 90's, the Council of Europe, aware of the science since the 1930s about the dangers of radar to human health, requested that young people in particular be protected from such commercial devices. Last April, the Council did so again, in even stronger terms and armed with even more research. In February of this year, the Ontario Teachers' Union came to the defense of their students' safety and demanded a general WiFi blackout in schools. Some schools have done so already (Globe & Mail, Feb 13, 2012).

There is no doubt that we live in a time in which science consistently takes a back seat to industry interests and that governments consistently support industry, not public health or medical facts. If you suspect that government is selling us out, body and soul, to toxic industries for profit, you are not mistaken.

Just like the FDA's Dr. David Graham, and Health Canada's Shiv Chopra, the radiation industry too has its whistleblowers: Barrie Trower, as reported in the Toronto Star on August 26, 2010, is a former British Secret Service Microwave Weapons Specialist who recently spoke at the University of Toronto. He stated that Canada "is one of the world leaders in microwave radiation research," having documented the first recognized symptoms of radiation sickness in 1932 in concert with the U.S. government. Canada shares 13 secret code names for this research which documents the damage. Trower also pointed out that "there isn't a school in the world that hasn't seen an increase in aggression [and other behavioural problems] when WiFi was introduced." He

stated: "By 1971 we knew everything that needed to be known. A 1976 document summarizing U.S. Defense Intelligence research is the saddest and most despicable document ever published in history." The document lists all of the health hazards caused by wireless devices and concludes: "This should be kept secret to preserve industrial profit." Trower also cited a 1950's report stating: "If this paper becomes known around the world, it will threaten military and commercial interests." He especially condemned Health Canada's Code 6, stating that the science-based safety level published in the BioInitiative Report is 0.1 microwatts per cm² – not Canada's 600 to 1,000 mW/cm²! 0408

Due to the determined suppression of the evidence over three quarters of a century, it is vitally important to get legal rulings that create a foundation for appropriate liability and the defense of public health through successful case law. That will force the invention of better technology. Last year the famous microwave activist Arthur Firstenberg brought a case regarding deployment of cell phone-related technology before the federal district court in New Mexico on the basis of the industry's infringement of the Americans with Disability Act. The judge ruled "that the Telecommunications Act preempts the Americans with Disabilities Act, even if such an interpretation would condemn a class of citizens to death because of their disabilities." The judge also ruled that the Equal Protection Clause and the Due Process Clause of the U.S. Constitution's 14th Amendment was not applicable.

An appeal was launched on February 21. My hunch is that because of the denial of fundamental human rights, this legal action will now move out of the polarization between industry and science and into the territory of what lawyers call "first principles," in this case liability law and established case law on harm done from whatever source.

Yes, the danger posed by EMF radiation is significant, but it is possible to save yourself and your loved ones. In Part 2 of this article, I will share the information and resources that I used to restore my health and make my home and workplace safe. Put simply, the answer to bad technology is not no technology, but good technology, just as bad medicine is cured by good medicine.

<http://vitalitymagazine.com/article/why-our-world-is-electropolluted/>