

To Lora Lee Martin:

Critique of CCST's report, "Health Impacts of Radio Frequency from Smart Meters,"

From: Samuel Milham MD, MPH

82181 Bergman Dr

Indio CA 92201

Dear Ms. Martin,

My name is Samuel Milham. I am a physician /epidemiologist , specializing in occupational medicine and in the health effects of electromagnetic fields (EMF). I was the first to document the link between occupational electromagnetic field exposure and cancer. My website www.sammilham.com has links to my recent papers, to my CV and to my new book, *Dirty Electricity* which presents evidence that most of the so-called diseases of civilization are due to EMF exposure not lifestyle.

Your report, unfortunately, reads as if were written by PG and E or Edison, and pays no attention at all to a very important EMF exposure variable, dirty electricity (high frequency voltage transients and harmonics).

Smart meters transmit their data via radio frequency (RF) either through the air or on utility wiring. The electronics of all transmitters operate on direct current (DC), which is obtained using inverters and switching power supplies in the meter which interrupt the grid AC current flow and generate dirty electricity which flows back to the grid on the 60 Hz AC throughout the substation service area. Interrupting current flow generates dirty electricity. Stetzer Electric markets a plug- in meter which measures dV/dT , the average rate of change of voltage on the wiring between 2 and 100 KHz, and capacitive filters to reduce the dirty electricity levels.

The grid was originally built so that all the electricity which flowed from the substation returned through the neutral wires. When people started using computers and other electrical devices with non-linear loads, the existing neutrals couldn't handle the loads and fires resulted. The electrical building codes were revised to require more robust in- building neutrals, but the utilities got off the hook by instead of beefing up their neutrals, they simply tied the neutrals to the earth so that now, about 70% of the electricity delivered from the substation , returns there via the ground. The California PUC rule 33.2 forbids using the earth

for return currents, but this didn't stop PG and E or Edison from running wires down every other power pole connecting the neutral to the earth. Here is the PUC rule: (the bold font is mine)

General Order 95

Section III

Requirements for All Lines

33.2 Ground or Earth as a Conductor

Ground or earth shall not be used as a normal return or circuit conductor. In direct current supply systems or in single phase or polyphase supply systems, a neutral or any other conductor shall be used under normal use as a return or circuit conductor; however, **the grounding of the neutral or any other conductor is not permitted as a normal return or circuit conductor.** The neutral or any other conductor is permitted to be grounded only for the purposes of stabilization and protection.

[Note: Revised January 19, 1994 by Resolution SU-25.](#)

Violation of this rule has created health problems in farm animals and families, and dirty electricity gets into our homes and offices and schools via ground rods and electrically conductive plumbing. I have measured higher EMFs in homes with the electrical service turned off due to unbalanced current flow.

In the last few weeks, I have been contacted by two electrohypersensitive California women, both of whom had to move out of their homes because of illness as smart meters were being introduced into their neighborhoods, before smart meters were attached to their homes. A third east coast woman sent me an oscilloscope wave form obtained in her home with the electrical service turned off and no smart meter on her house. The neighborhood had smart meters deployed which used utility wiring to submit information to the substation. The frequency of the wave form was exactly that used to transmit smart meter information. (I'll provide names and contact information on request). In the California cases the residences were too far from the transmitting smart meters to be affected by the RF. I believe that in all three cases, the damaging signal was dirty electricity in the wiring and the ground currents coming from the deployed meters.

My hypothesis is easy enough to test. Dirty electricity levels measured in homes, offices and schools should increase after the meters are deployed. Dirty electricity levels measured in the utility drops and in the earth will also increase as the meters are deployed. Since dirty electricity is a potent carcinogen (see attached paper and pp. 78-80 in my book), and causes numerous health problems, the only way to avoid a public health catastrophe is to send the smart meter information over existing telephone land lines or go back to the analog meters. I'm not making light of or ignoring the RF pollution caused by the smart meters, but think the dirty electricity may be a more serious and intractable problem.

My contact information is available on my website.

Respectfully, Sam Milham MD, MPH