

OPEN MEETING AGENDA ITEM



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Elizabeth A. Kelley, MA

Electromagnetic Safety Alliance, Inc.

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AZ CORP COMMISSION Arizona Corporation Commission
DOCKET CONTROL DOCKETED

DEC 12 2014

December 12, 2014

To: Arizona Corporation Commissioners

Re: Comments on AZCC Docket No. E-00000C-11-0328

DOCKETED BY

My comments are primarily directed towards the Arizona Department of Health Services report on Electric Meters. ***I recommend against Arizona Corporation Commission acceptance of this report as written. I recommend that the Commissioners reverse its' approval of APS' opt out policy proposal and permit people to either retain their electromechanical analog meter or have one installed.*** There have never been any health risks close to the risks that people have experienced from the newer meters. Specifically, the installation of wireless digital meters, AMR and AMI meters, as well as PLC meters, which use electrical utility and building wires to transmit energy use data, have resulted in an increase in pulse modulated radio frequency radiation transmissions through the air and on the electrical wires inside and around residential properties. There are many reports of adverse health effects from these meters that urgently need to be addressed. This report, prepared by Arizona's public health department, does not seem to understand these problems or their urgency.

There is established scientific evidence that has been published in peer reviewed journals world-wide for decades, demonstrating that radiofrequency radiation can cause biological changes and adverse health effects at low intensity levels that cause harm to mankind and nature. You have received a great number of anecdotal reports, which in the aggregate should be considered evidence, about the health problems caused by meters that are installed in homes throughout Arizona. These health problems developed after the meters were installed. In formal complaints and letters filed with the Arizona Corporation Commission, people are asking the Commissioners to intervene and resolve these problems. ***As Arizona's Corporation Commissioners, you would be neglecting your legal obligation to protect the health and safety of all Arizonans by accepting this flawed and erroneous DHS report.***

Here are my detailed comments:

1. No formal request by the ACC was made to DHS to commission a study of electric meters

You approved the concept of asking the AZ/DHS to conduct a study at an ACC staff meeting in August 2013, in response to a proposal made by Commissioner Brenda Burns. In the fall of 2013, I started contacting Jennifer Botsworth, MSPH, who works in the DHS Office of Environmental Toxicology. Ms. Botsworth informed me that she was coordinating the study. I inquired about getting a copy of the formal request letter that commissioned the study and set the goals for it. Ms Botsworth informed me that a formal request letter had not been sent by the ACC to the DHS/OET. I later contacted the Office

of Ms. Jodi Jerich, AZCC Executive Director, and asked the same question. I was informed by Ms. Jerich's assistant that no formal letter commissioning the study had been sent.

Due to the lack of transparency in the manner in which this study was commissioned, there is no evidence of what the initial request was, including the goals.

2. **Only one of the two study goals outlined in the report were met**

The first goal was, "to determine whether RF exposure from electronic meters on residences including single family homes and apartment complexes are within the FCC standards or are at levels to cause public health concern".

I do not agree that the report provides sufficient documentation to prove the RF emissions are safe for the following reasons:

- The testing instrument used was a Tenmar TM-195, which is not an acceptable and professionally calibrated instrument needed to conduct this type of field survey. Use of this meter could not determine whether RF signals from the electric meters are in compliance with the FCC's RF guidelines. I sought the expert opinion of Peter Serick, Principal at Environmental Testing and Technology, Inc., in California and have attached his opinion letterⁱ.
- There were peer reviewed papers filed in the open docket linking RF exposure to neurological symptoms, diseases, hormonal changes, etc. that are occurring below the FCC's safety threshold but these papers are not referenced by the report. These papers indicate there are public health concerns below the FCC safety threshold.
- Finally, there is substantial evidence indicating public health concerns by the many anecdotal reports that were filed with the open docket. People are reporting neurological symptoms, or signs of electromagnetic hypersensitivity, that they think are being triggered or exacerbated by the installation of the new meters. These reports, in the aggregate, constitute credible data and should be given greater consideration. ***Reports of health symptoms from the general population can be an early warning sign of an emerging public health concern that cause public health agencies to conduct a risk assessment of. There was no mention in the report that DHS was planning to do this.***

The second goal was, "to determine whether the current body of peer-reviewed literature has found an association between RF exposure from low level RF exposure and adverse health effects."

- I reviewed the peer reviewed papers cited in the report and found that only a few peer reviewed papers submitted to the open docket were included. Of the approximately 20 studies that were selected for the report, a few reported adverse health effects.
- On page 13 of the report, a table was provided, taken from a paper co-authored by Vigjayalaxmi, published in November, 2014ⁱⁱ. The table referenced "the conclusions on the biological effects of RF exposures from various national and international expert groups". The reference to the position of the International Agency on Research on Cancer (IARC) is

misleading. I read the complete paper and noted that, on p.9379, the IARC did state, "No increased risk for meningioma and glioma with mobile phone use" but then continued on to state "Increased risk of glioma at the highest cumulative hours of mobile phone use. Limited evidence from animal studies. Weak evidence from other relevant studies". IARC also is shown on this chart to have recommended "classifying RF as a possible carcinogen, class 2-B." The classification made in 2001 and was primarily determined by epidemiological studies showing links between cell phone use and glioma and acoustic neuroma. In addition, the IARC stated that their classification of RF as a class 2b human carcinogen applies to all RF sources, which includes RF emitting electrical meters.

- The report's conclusion does not give consideration to earlier report findings on the Russian standards, which are much lower than the international exposure standards, at 0.01 uW/cm². These lower standards were adopted as the Russians have extensive research-based knowledge on the low intensity effects of radio frequency radiation. They have conducted animal studies to provide the justification for the lowered standard. By comparison, U.S. government public health agencies have for the past several years been conducting some animal studies as part of the U.S. NIEHS' Toxicology Program review of the radiofrequency radiation signals used by 2nd generation wireless enabled cell phones. The Russian studies on low intensity effects on animals have already documented changes in the immune system and they have adopted a much lower safety threshold for exposure than the ICNIRP, IEEE or FCC as a result.
- It is important to give full recognition to the fact that, in 2011, the World Health Organization EMF Program adopted the IARC classification of RF as a possible human carcinogen. At the present time, the WHO EMF Program seems to have grown more committed to supporting the heat-based international standards set by the ICNIRP and IEEE, who are seeking harmonized standards that will hasten the deployment of the global smart electric grid. ***It is odd that this report, prepared by a state public health agency, does not acknowledge that the IARC/WHO had classified radio frequency radiation as a class 2B carcinogen in 2011. Acknowledging this lends supports the finding that there may be an association.***
- Finally, the report concludes that "available government assessments and scientific literature indicated that there is no consistent of convincing evidences to support a cause-and-effect relationship related to the exposure." The goal was not to prove causality, which is a higher standard to meet than it is to show there is an association. However, the section on the peer reviewed literature on RF exposure and adverse health effects is superficial and doesn't elucidate much of the depth or breadth of the scientific evidence on the biological and health effects of radiofrequency radiation, which is quite substantial and does show there is an association.

Continued field studies on AMI, AMR and PLC meters are needed

The introduction of AMI “Smart” meters has received the most attention due to the fact that these meters were new and there have been many reports of their causing problems, such as adverse health effects, building fires, threat to personal privacy and, raising serious questions about the cost-effectiveness of the entire smart grid programⁱⁱⁱ.

AMR meters put out a pulsed wireless digital signal that is also capable of causing adverse health effects. PLC meters intentionally use the electrical wires to transmit energy use data to the utility and that use generates more high transients and electrical surges on the wires, causing power quality problems also known as “dirty electricity” which also can cause health problems. The ACC should continue testing all three types of electric meters to ensure public health protection.

The waiver policy for rural electrical coops should be reviewed

There have been adverse health effects reported by people who have AMR meters and PLC meters installed on their homes. This report does not present enough analytic information on AMR and PLC meters. The most reliable and non-toxic meter is an electromechanical analog meter.

During the smart meter hearing in March 2012, I heard Mr. Curtis, the attorney who was representing Navapache and Tricor, two of the 30 rural electric cooperatives in Arizona at the time, explain to the ACC that PLC meters were not harmful. He continued by saying that there had been some problems with dairy cows in the upper Midwest but that those problems had been solved. Then, the President of the Grand Canyon Rural Electrical Cooperative, who represents the other 29 rural coops, too, asked the Commissioners to give the rural coops a waiver from the opt out policies that the larger electrical utilities are offering, because they are small, member owned non-profits and only use these safe PLC meters.

Since that hearing, I have learned that the rural coops actually use all three meters, depending on their service areas. As they do not offer any opt outs, many of their customers are suffering ill health effects. Those who can do so, try to move elsewhere as they cannot tolerate living in their homes.

AMR meters put out a pulsed wireless digital signal that is also capable of causing adverse health effects. The AC should commission a new review of all three electric meters.

The ACC should keep the generic docket (e-00000C-11-0328) open

In the 1950s, the safe uses of pesticides were universally mocked – now we know differently. Let’s not go knowingly down that road again. New developments are unfolding almost daily, about the smart electric meters and these developments need to be monitored. By leaving the docket open, we can all participate in a public dialogue about the utility, safety and effectiveness of smart meters, other electric meters and work on solutions that pose less risks while encouraging technological innovations and improvements that are cost-effective.

In the 1950s, the safe use of pesticides were universally mocked – now we know differently. Let's not go knowingly down that road again. I am quoting Dr. Robert Kaplan, who wrote this in a letter to the ACC that I filed this morning. Dr. Kaplan is a licensed physician in private practice in Arizona. He urges caution in allowing public utilities in Arizona the unfettered ability to place meters at will within our communities.

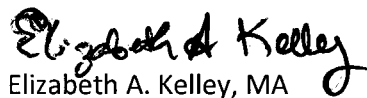
Dr. Robert Crago, a licensed clinical psychologist, wrote a letter about the health hazards of smart meters that was previously filed in the docket in 2011, but which I have included here.

I am also including a letter filed in the docket on December 11, written by Sandra Svaco, detailing what she and her family went through after a smart meter was installed at their home. I have been talking with people around the state for the past 4 years and her letter is just one of many examples of the terrible problems these meters cause. There is a burgeoning civil rights issue developing here as people are effectively prevented from the private enjoyment of their own homes due to electronic trespass, which is an abatable nuisance^{iv}.

My biographical statement is attached for your information^v

I sincerely hope that the Arizona Corporation will make this their top priority and seek to responsibly serve the needs and concerns of the public, even if it means they put off plans to foster technological innovation in metering as these newer meters seem to be causing unintended consequences.

Sincerely,


Elizabeth A. Kelley, MA

ⁱ See Attachment A: Letter to ACC from Peter H. Serick, Industrial Hygienist, and RF Safety Professional.

ⁱⁱ See Alaxmi, Vijay and Maria R Scarfi, "International and National Expert Group Evaluations: Biological/Health Effects of Radiofrequency Fields." International Journal of Environmental Research and Public Health 11.9 (2014), listed in the "Works Cited" section of the report.

ⁱⁱⁱ See Attachment A for special report to the ACC prepared by Dr. Magda Havas, PhD.; recent news reports about fires caused by smart meters in Canada; and, a new report on smart electric grid cost-effectiveness issued by the Auditor General of Ontario, Canada.

^{iv} See Attachment A for correspondence from Dr. Robert Kaplan, MD; Dr. Robert Crago, PhD.; and, Sandra Svaco

^v See Attachment A for Elizabeth A. Kelley's biographical statement

Attachment A – order of materials attached

1. Expert opinion letter from Peter Serick, dated December 8, 2014
2. Smart Meter report for AZCC hearing on 12/12/14, prepared by Dr, Magda Havas, PhD., Canada
3. News article, "SaskPower to remove 105,000 smart meters following fires", CBC News, July 30, 2014
4. News article, "Few benefits from \$2 billion smart meter program, auditor says
5. Expert opinion letter from Dr. Robert Kaplan, MD, Scottsdale, Arizona
6. Expert opinion letter from Dr. Robert Crago, PhD, Tucson, Arizona
7. Explanatory letter from Sandra Svaco, Prescott, Arizona
8. Elizabeth Kelley's biographical statement



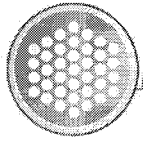
December 8, 2014

Arizona Corporation Commission
Docket Control
1200 W. Washington Street
Phoenix, AZ, 85007-2996

RE: Docket e-00000C-11-0328
Review of RF Testing Methodology for Smart Meter Report

As an industrial hygiene company conducting radio frequency (RF) surveys for the past 25 years, we are deeply concerned about the instrumentation and methodology used and the results reported by The Arizona State Department of Health Services (ADPH) and The Arizona Radiation Regulatory Agency (ARRA). The following points will provide a short summary of the insufficiencies.

- We are completely taken back that a Tenmar TM-195 instrument was used for this survey and sampling. This survey meter is an inexpensive consumer type instrument. It is not an acceptable and professionally calibrated instrument which is needed to conduct this type of a survey.
- The instrument does not have a calibration record, nor is one provided with the report. Calibration of instrumentation is a prerequisite for any serious professional industrial hygiene investigation, especially if a regulatory compliance surveys is performed. ADPH solely relies on the data submitted by the manufacture, whose accuracy data is highly suspect. It states that an accuracy levels found in professional instrument in the \$10,000.00 price range, while this instrument retails for less than 200 dollars. This is impossible to achieve.
- We are shocked to learn that ADPH states that it uses this instrument for all its regulatory investigation. In my opinion, this constitutes professional negligence.
- The instrument used is not specific to the frequencies emitted by the smart meter (902-928 MHz), but measures a broad range of all frequencies from TV and Radio broadcasting, cellular towers and phones, radar and other sources.
- Smart meter RF studies (EPRI, Vermont, etc.) conducted by Richard Tell Associates, cited in this report, use only professional and calibrated instrumentation, such as the Narda SRM 3006. This instrument also allows smart meter frequency-specific measurements.
- Basic RF measurement principles differentiate between near and far field measurements. The far field starts at approximately 3 wave lengths from the emitting source, which is a distance of approximately 3 feet from the smart meter.
- Measurements were taken at a distance of 1 foot from the smart meters. This distance is still in the near field range. The instrument used is designed for far field measurements, which means a distance of at least 3 feet. Otherwise, the results are unreliable from a physics point of view alone.
- The measurement results are reported in W/m². This makes the results appear be very small (i.e. 0.00001). Results are customarily reported in either mW/m² (Europe) or mW/cm² (US).



ET&T
INDOOR ENVIRONMENTAL SURVEYS

In summary, the results of the ADPH/ARRA study are unreliable and substandard, and should be removed from the document and decisions making process. A professional survey with appropriate instrumentation should be conducted.

Thank you for giving us the opportunity to comment on the report. If you have any further questions, please feel free to call us at (760) 804-9400.

Sincerely,

Peter H. Sierck
Principal/Industrial Hygienist

RF Safety Professional
California Registered Environmental Assessor
Certified Indoor Environmental Consultant
OSHA General Industry Instructor



Dr. Magda Havas, B.Sc., Ph.D.

Environmental & Resource Studies and Centre for Health Studies
TRENT UNIVERSITY, PETERBOROUGH, ONTARIO, CANADA, K9J 7B8
Phone: (705) 748-1011 ext. 1232, **FAX:** (705) 748-1569, **e-mail** mhavas@trentu.ca

Date: December 8, 2014

To: Arizona Corporation Commission
Chairman: Bob Stump
Commissioners: Gary Pierce, Brenda Burns, Susan Bitter Smith, and Bob Burns

From: Magda Havas, BSc, PhD
Environmental & Resource Studies and the Centre for Health Studies,
Trent University, Peterborough, ON, Canada, K9J 7B8

Re: "Smart Meters", hearing to be held on December 12, 2014.

Dear Commissioners,

It is my understanding that you are holding a public hearing on smart meters, December 12, 2014. As a university professor and scientist who does research on the biological effects of electromagnetic radiation, I would like to provide you with some information about smart meters and how people react to this type of radiation.

Attached is my expert testimony that includes:

1. a summary of my education and expertise;
2. myths associated with smart meters as considerable misinformation is circulating among those who should have a better understanding of how smart meters work and their potential biological and health effects; and
3. recommendations for you to consider for the State of Arizona;
4. timely information regarding smart meters in Ontario (December 9, 2014) and a public meeting regarding smart meters in Michigan (Dec 2, 2014).

I am unable to attend your meeting on December 12, 2014, but would be willing to respond to questions or comments related to my report.

Sincerely,

A handwritten signature in black ink, appearing to read "Magda Havas".

Magda Havas,
Associate Professor

Arizona Corporation Commission

Smart Meters

EXPERT TESTIMONY

Dr. Magda Havas, B.Sc., Ph.D.
Trent University, Peterborough, ON, Canada

Prepared for
Public Hearing on December 12th, 2014

I, **Dr. Magda Havas**, have been asked by Arizona citizens to share my expert understanding of the potentially harmful biological and health effects associate with smart meters. Below is the evidence I am submitting and swear it is true, to the best of my knowledge.

I, Dr. Magda Havas, give my expert evidence as follows:

1. MY EDUCATION AND EXPERTISE . . .

- 1.1 I am an **Associate Professor** of Environmental & Resource Studies at Trent University where I **teach** and do **research** on the biological effects of environmental contaminants and electromagnetic pollution.
- 1.2 I received my Ph.D. from the **University of Toronto**, completed Post-Doctoral research at **Cornell University**, and taught at the **University of Toronto** before going to **Trent University** in Peterborough, Canada.
- 1.3 Since the mid 1990s I have researched the biological effects of electromagnetic pollution including **radio frequency radiation, low frequency electromagnetic fields, dirty electricity, and ground current.**
- 1.4 I work with **diabetics**, with individuals who have **neurological disorders**, as well as with individuals who are **electrically hypersensitive.**
- 1.5 Since the mid 1990s I have taught about electromagnetic pollution in several **courses** at Trent University and have supervised reading courses and honors thesis research in this area. One, of the senior undergraduate courses deals specifically with the **biological effects of electromagnetic fields and electromagnetic radiation.**
- 1.6 I have presented my research at international and national scientific symposia and conferences in more than **20 countries** and at more than **24 colleges and universities.** I have been invite to present my work in Canada to **Federal, Provincial and Municipal Governments** and have presented to **Senate and Congressional staff** in Washington D.C.
- 1.7 I have provided **expert testimony** on the health effects of electromagnetic pollution as they relate to occupational exposure, high voltage transmission lines, magnetic fields, and cellular phone and broadcast antennas in both Canada and the United States (North Carolina and Minnesota).
- 1.8 I am an **advisor** to several public interest groups and educational groups concerned with the health of the environment and am currently science advisor on

EMF-related issues to several non-profit organizations including The Canadian Initiative to Stop Wireless Electric and Electromagnetic Pollution, the Council on Wireless Technology Impacts, the EMR Policy Institute in the US, the EM Radiation Research Trust in the UK, International Commission for Electromagnetic Safety in the EU, the National Platform Stralingsrisicos in the Netherlands and – most recently – Doctors for Safer Schools.

- 1.9 I **co-authored**, with Camilla Rees, *Public Health SOS: The Shadow Side of the Wireless Revolution* and I have **co-edited** three books and have **published** more than 130 articles.

2. MYTHS ASSOCIATED WITH SMART METERS . . .

2.1 *Smart meters will save energy.*

Smart meters use more energy than the analogue meters they are replacing and it takes energy to build, run and maintain the smart grid. Smart meters are replacing perfectly working analogue meters and have a much shorter half-life than their analogue counterparts.

2.2 *Smart meters save customers money.*

Installation of smarter meters in California cost \$3.8 billion dollars and customers will eventually pay this bill. Those who want to opt out of having a smart meter attached to their home need to pay for replacement of smart meter or a dedicated phone line for the meter with monthly operating costs that vary between jurisdictions. Also, following some smart meter installations, utility bills have increased considerably and remain high when customers are away from home so there may be some accuracy and/or interference problems with wireless smart meters.

The Auditor General's report regarding smart meters in Ontario was just released and documents that smart meters have few benefits and many flaws including excessive cost to tax payers. This report is receiving national attention as more provinces install smart meters (http://www.thestar.com/business/2014/12/09/smart_meters_have_few_benefits_f_or_big_costs_ag_report.html). A pdf of the report in the Toronto Star (December 9, 2014) is appended to my testimony.

2.3 *Smart meters have been tested and are safe.*

Smart meters have not been tested by Underwriters Laboratories (UL) nor have tests been conducted on the "safety" of smart meters. Indeed, several fires across North America have been due to malfunctioning or improperly installed smart meters



and Saskatchewan in Canada is removing all smart meters because they are a fire hazard. See news report in Item 4 and at following link:

<http://www.cbc.ca/news/canada/saskatchewan/saskpower-to-remove-105-000-smart-meters-following-fires-1.2723046>

- 2.4 *There are no privacy issues as utilities cannot determine what appliances you are using and when.*

Nonintrusive load monitoring (NILM) can detect what types of appliances people have and their behavioral patterns. Patterns of energy use may indicate times that nobody is at home. If this monitoring is run remotely at a utility or by a third party, the homeowners may not know that their behavior is being monitored and recorded. The accuracy and capability of this technology is still developing and is not 100% reliable in near real time.

- 2.5 *Smart meters communicate about 1 minute each day.*

There are different types of smart meters. Some are basic and some are collector meters. Collector meters receive information from other smart meters in the neighborhood and pass this information onto the utility. These “collector” smart meters have much longer periods of “communication” and some are “on” virtually all the time.

Smart meters are used for electricity and, in some communities, also for water and natural gas. Smart appliances are currently available that are able to communicate with the smart meter. All of these devices use radio frequency radiation. As more smart meters are deployed and smart appliances replace older appliances, radio frequency radiation in the home will increase substantially.

- 2.6 *Smart meters do not pose a health concern because levels are well below FCC guidelines.*

FCC guidelines are based exclusively on a thermal (heating) effect and were designed to protect military personnel (healthy, fit, adult males) from radar and later from microwave heaters in occupational settings. These guidelines were intended for short-term exposure (6 to 30 minutes) and the long-term effects of virtually continuous exposure are unknown. Furthermore, these are not biologically based guidelines and were not designed to protect children, pregnant women, the elderly or the infirmed.

- 2.7 *Peak intensity values are low.*

The way intensity (strength of the radio frequency radiation) is measured provides an underestimate of the peak exposure; hence peak exposure is much higher than what is reported. For example, percent duty cycle is a function of the time the meter is on versus the total time period (meter on + meter off). For an actual peak intensity of 200 units with a duty cycle of 50% (i.e. on 50% of the time) the

peak intensity is calculated at 100 units; and for a duty cycle of 10% (i.e. on 10% of the time) the calculated peak intensity is 20 units (much less than the actual 200 units) giving a false sense of security. Both peak exposure and cumulative exposure are important from a biological perspective.

2.8 *Smart meters have no biological effects.*

Smart meters with high duty cycles (% of time they are transmitting) placed near plants cause plants to die. The shrub in the photograph below was dead a year after the smart meter was installed. Note the dead leaves just left of the smart meter a short time after installation.



2.9 *Smart meters have no health effects.*

The International Agency for Research on Cancer (IARC), an arm of the World Health Organization (WHO), classified radio frequency radiation (RFR) as a possible human carcinogen (Class 2B Carcinogen) in 2011. Smart meters emit radio frequency radiation and levels at which RFR are associated with cancer are well below FCC and international guidelines.

2.10 *Smart meters are electromagnetically clean.*

Smart meters also generate poor power quality at intermediate frequencies (thousands of cycles per second or kHz range) and this form of energy has been associated with increased blood sugar among both type one and type two diabetics, exacerbated symptoms of multiple sclerosis, and various types of cancer. This “dirty electricity,” consisting of harmonics and transients, flows along electrical wires and can be elevated in rooms far from the smart meter.

3. RECOMMENDATIONS REGARDING SMART METERS AND SMART APPLIANCES . . .

The term “smart” meter refers to meters that provide at least two-way communication (home to/from utility). The information provided by “smart” meters can be sent through the air (wireless) or along fiber optics, phone lines, electrical wires or cables (wired). **Wired smart meters are much safer than wireless smart meters.** The same is true of “smart” appliances.

Wireless technology is important in a mobile setting but is frivolous in a static setting (like a home/business). It is as ridiculous as using x-rays to determine the size of shoes needed by children. This was a common practice after x-rays were discovered and was discontinued when the harmful effects of x-rays became

known. X-rays were reserved for essential medical use only.

Radio frequency radiation is not biologically benign. Its use needs to be restricted to mobile communication and situations where wired communication is not possible.

- 3.1 *Wired smart meters are preferred to wireless smart meters because they have fewer biological and health effects. This is true for electricity, water and natural gas.*

Wired smart meters are less expensive than **wireless** smart meters in the long run if health costs are factored into the equation. This is based on scientific evidence that both poor power quality and RFR have biological and health effects at levels well below FCC and International guidelines.

- 3.2 *Individuals should be allowed to opt out of the “smart meter” program with no financial burden.*

Some individuals are particularly sensitive to radio frequency radiation and need to live in a relatively clean electromagnetic environment. Insisting that they pay for a replacement of their smart meter places an additional financial strain on individuals whose health may already be compromised. Those particularly vulnerable include individuals with a family history of cancer, those who have heart disease, those with an impaired autoimmune system, pregnant women, and children.

- 3.3 *Wireless “smart appliance” should be discontinued.*

In the event that it is absolutely necessary for appliances to be able to communicate with smart meters—this communication should be done through wires. This includes either a dedicated wiring system within homes that may include a phone line, fiber optics, or shield electrical wires. Being able to disengage the RF device on the smart appliance, without voiding the warranty, should be mandatory.

4. RECENT INFORMATION REGARDING SMART METERS . . .

- 4.1 *SaskPower to remove 105,000 smart meters following fires; CBC News, July 30, 2014. <http://www.cbc.ca/news/canada/saskatchewan/saskpower-to-remove-105-000-smart-meters-following-fires-1.2723046> (see attached pdf).*

- 4.2 *Few benefits from \$2 billion smart meter program, auditor says. The Toronto Star, December 9, 2014. http://www.thestar.com/news/canada/2014/12/09/few_benefits_from_2_billion_smart_meter_program_auditor_says.html (see attached pdf).*

4.3 *Public Hearing on Smart Meters, Michigan House of Representatives, Oversight Committee, December 2, 2014.* Video recording of hearing available here.

<http://facebook.us8.list-manage.com/track/click?u=ded63d3d4ccba538349d08d67&id=e29361f50e&e=968031bc08>

<http://facebook.us8.list-manage.com/track/click?u=ded63d3d4ccba538349d08d67&id=05ceb4e179&e=968031bc08>

Respectfully submitted, December 9, 2014
XXX

SaskPower to remove 105,000 smart meters following fires

8 unexplained fires associated with new devices that measure power consumption

CBC News Posted: Jul 30, 2014 2:53 PM CT Last Updated: Jul 31, 2014 11:20 AM CT

The Saskatchewan government has ordered its power utility SaskPower to remove 105,000 so-called smart meters installed at homes and businesses across the province, following concerns about eight unexplained fires associated with the units.

The minister responsible for the provincial Crown corporation, Bill Boyd, announced the move Wednesday.

"The concerns about safety are paramount here," Boyd told reporters in Regina. "The concerns are significant enough that we believe that any time that families are at risk here in Saskatchewan, actions have to be taken. That's why we've directed SaskPower accordingly."

- **SaskPower identifies 2 more smart meter failures**

The issues with the smart meters in Saskatchewan have prompted the city of Medicine Hat, Alta. to halt installations of its automated electricity meters as well.

- **Smart meter fires prompt Medicine Hat to halt switchover**

Questions about the meters surfaced in July when SaskPower announced it was investigating a handful of cases where newly installed meters malfunctioned. In all cases, the failures only affected the outside of a home and no one was hurt.

SaskPower had put its meter replacement program on hold while it investigated the fires. As of Monday, eight had been reported.

Boyd said it was still not known why the units failed.

Sensus Corporation, the company that supplied the meters, said in a statement to CBC News Wednesday that it has millions of meters operating safely across North America.

"We have no confirmation that the meter is the source [of the fire problems]," the statement said. "We are working with SaskPower to understand what specific events led to those issues and to determine the best course of action. The investigation is still underway."

Sensus is a multinational company servicing the utility industry with headquarters in the U.S. and operations

around the world.

Cost of swap in the millions

According to officials, it will take about six to nine months to swap out the meters already installed. That is expected to cost about \$90 per customer — \$45 for a different meter and \$45 for the work. That works out to around \$9.5 million for the entire province. SaskPower also has a cache of more than 100,000 new devices in storage that will not be used.

Later on Wednesday, SaskPower indicated it expected the overall cost of the recall could reach \$15 million. On Thursday, officials added that the cost already spent on the smart meter program was \$37 million.

It was not immediately clear who would cover the costs associated with the swap. Boyd said he hoped to recoup the money from the company that supplied the meters.

The minister also said SaskPower will conduct an internal review to examine how the company came to select Sensus meters for its system-wide replacement program.

"Certainly, the initial goals [of the replacement program] were right," Boyd said. "[To] provide a better meter, a better understanding of power usage of individual homes."

Boyd did not rule out the possibility of SaskPower using smart meters again some time in the future, but said their reintroduction would have to be carefully evaluated.

"We are not going to see these smart meters installed any time soon, that's for sure," he said. "We will continue to evaluate the technologies going forward. We'll continue to evaluate additional smart meters going forward and look at them in the context of Saskatchewan's climactic conditions to ensure that they will be absolutely safe."

Sensus statement:

"Be assured that there are no safety issues with Sensus electric meters that support today's decision by the provincial overnment of Saskatchewan.

Safety is our number one priority, and all Sensus meters are subject to rigorous testing and meet or exceed all industry safety standards.

We have no confirmation that the meter is the source. We are working with SaskPower to understand what specific events led to those issues and to determine the best course of action. The investigation is still underway.

Sensus underscores the critical importance of careful meter installation procedures, including the examination of meter boxes and wiring at installation, training of meter installers and the need to have rapid remedial

action when field problems are observed.

There are approximately 10 million Sensus meters in North America operating safely and reliably."

The smart meters, which are manufactured by Sensus Corporation, allow SaskPower to bill customers for the power they use each month rather than relying on estimates between meter readings. The utility introduced the replacement program in October 2013.

No changes for some Saskatoon residents

The government's move applies to customers of SaskPower throughout the province, but does not apply to parts of Saskatoon that receive service from that city's power and light utility. According to Saskatoon officials, their meter replacement program, which uses a different supplier, has not had any problems.

"We have not heard any reports of problems with the Elster brand meters," Kevin Hudson, a Saskatoon city official, said in a statement Wednesday.

Saskatoon has about 60,000 customers on its system and said half of them have new meters.

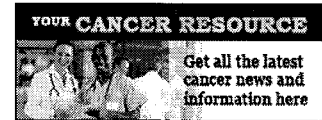
SaskPower had been planning to replace a total of 500,000 meters.

Among the features of the new meters was an ability to transmit power usage data through a radio frequency, making it unnecessary for a meter reader to enter a home. That feature had not been implemented for the new meters already installed but was part of the overall plan for the new technology.

Replay the live chat below, or if you'd like to weigh in, leave your thoughts in the comment section.

Join online host Matt Kruchak from Monday to Friday between 6-8:45 a.m. on cbc.ca/saskatoon for a lively and engaging live chat. While chatting, tune into Saskatoon Morning on 94.1 FM with host Leisha Grebinski.

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News / Canada

Few benefits from \$2 billion smart meter program, auditor says

Ontario's \$2 billion smart meter program hasn't delivered value, says auditor-general Bonnie Lysyk

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Ontario's auditor general says the province's smart meter program has failed some key objectives. In a new report, Bonnie Lysyk says the \$2-billion initiative has not met electricity conservation or cost-reduction goals.

By: John Spears Business reporter, Published on Tue Dec 09 2014

Ontario's \$1.9-billion smart meter program for hydro utilities has delivered few benefits for the hefty cost, says Ontario's auditor general Bonnie Lysyk.

In fact, one in six of the 4.8 million meters installed have not yet transmitted any readings, she found.

"Based on a \$2 billion investment, there doesn't seem to be \$2 billion of value coming yet," she said.


But Energy Minister Bob Chiarelli sharply disputed Lysyk's findings, and suggested she doesn't understand the electricity system.

"The A-G's estimates of total costs are not accurate," Chiarelli told reporters.

"Why are my numbers more credible than hers?" he said, when challenged. "The electricity system is very complex, is very difficult to understand.

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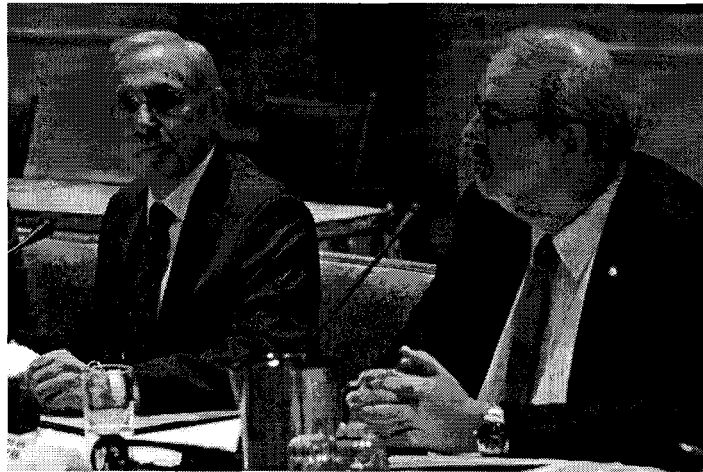


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CHRIS YOUNG / THE CANADIAN PRESS FILE PHOTO

Energy Minister Bob Chiarelli, left, sharply disputed auditor general Bonnie Lysyk's findings, and suggested she doesn't understand the electricity system.

"And I can tell you that some of our senior managers in discussing these issues with some of the representatives from the auditor general's office had the feeling they didn't understand some of the elements of it."

Lysyk also took a roundhouse swing at the province for plunging into the system without proper planning, and making it impossible for consumers to understand their rising hydro bills.

She saved a special jab at Hydro One, which she said incurred about 50 per cent of the cost of the smart meter program but installed only 25 per cent of the meters.

Smart meters allow utilities to charge different prices at different times of day, a function that's supposed to encourage conservation, especially at peak times when the system is under stress.

But Lysyk said the pricing system has had only "a modest impact on reducing peak demand" among householders and "no impact at all on energy conservation."

Among her findings:

- Smart meters were supposed to cost \$1 billion. In fact, the total cost will be double that amount.
- The energy ministry grossly over-estimated the benefits of the smart meter program. It figured the net benefit would be \$600 million over 15 years. But it forgot to include a yearly inflationary increase of \$50 million. That reduces the net benefit of the huge project to \$88 million over 15 years.
- The cost of smart meters varied wildly among Ontario's 73 local utilities, which paid from a low of \$88 per meter to a high of \$544.
- Energy bureaucrats have bamboozled consumers for years by lumping the true costs of energy in a catch-all fee called the "global adjustment" that now makes up the majority of the cost of energy.

Lysyk said that neither the energy ministry nor the Ontario Energy Board — which is supposed to protect ratepayers — did a cost-benefit analysis of smart meters before plunging ahead with the program, first estimated in 2005 to cost \$1 billion.



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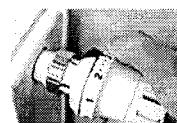
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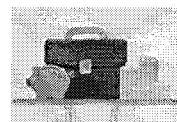
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Energy Minister Bob Chiarelli, left, sharply disputed auditor general Bonnie Lysyk's findings, and suggested she doesn't understand the electricity system.

"Given the large scale of smart metering and the high risk associated with new technology, its implementation should have warranted strong governance and oversight," Lysyk wrote.

Costs continued to rise after the initial \$1 billion estimate. They stood at \$1.4 billion by the end of 2013, Lysyk reports.

In addition, the Independent Electricity System Operator (IESO) — which operates the Ontario power grid minute by minute — spent \$249 million on a provincial data centre to collect the torrent of information that flows out of smart meters.

The cost is billed to ratepayers.

But Lysyk found that, in many instances the centre duplicates the data collected by many utilities. (The IESO responds in the report that there's no duplication because it has "exclusive authority" over the function performed by the centre.)

At a news conference, Chiarelli accused Lysyk of doing some sloppy accounting in adding up the cost of the smart meters and coming to nearly \$2 billion.

For example, he said, for one item she used an estimated cost figure of \$450 million for her calculation, when the actual figure was only \$253 million — verified by the Ontario Energy Board.

She also used an estimated cost for scrapping old meters of \$400 million when only \$280 million in costs was actually incurred, he said.

Chiarelli also said there's no duplication in the function of the IESO's new data centre does.

Interim Progressive Conservative Leader Jim Wilson said the report showed "an unprecedented level of arrogance" for Energy Minister Bob Chiarelli and Infrastructure Minister Brad Duguid to disagree with the auditor's findings.

"There are times when you're a minister you find the auditor's advice tough medicine but you swallow that tough medicine . . . you certainly don't challenge the credibility of an officer of the legislature," he added.

"They blame everybody but themselves."

NDP Leader Andrea Horwath said "it's a level of arrogance I didn't even expect from Liberals."

In her report, Lysyk also challenged the claim that smart meters save money.

Smart meters send in data by electronic signal, so meter readers are no longer required. But Lysyk said that only 5 per cent of utilities reported savings. The others said their costs were the same, or higher.

Nor did the meters do much for consumers, Lysyk found. The province claims the meters and time-of-use pricing should help customers save money, and lower stress on the system during peak demand periods.

Lysyk said the difference between peak and off-peak rates hasn't been large enough to encourage consumers to change behaviour patterns. In fact, over the years, the

difference has narrowed, providing less and less incentive to cut back during peak demand.

Lysyk wrote that it's difficult for customers to even understand their bills.

Most power generators are paid not through a visible market, but through contracts with private generators, and regulated rates from Ontario Power Generation.

The cost of all those contracts is now rolled into a single, opaque ball and charged back to customers through a fee called the "global adjustment" that now makes up about 70 per cent of the energy charge on hydro bills.

Lysyk estimates consumers will pay \$50 billion in global adjustment fees in the period 2006 to 2015 — enough to cover the 2014 provincial deficit five times.

She also slams the province for increasing the supply of electricity beyond what the province needs.

Ontario has always exported some power, but exports grew 158 per cent between 2006 to 2013.

The problem is that the electricity is usually sold at a steep loss: "The total cost of producing the exported power was about \$2.6 billion more than the revenue Ontario received from exporting that power."

The losses are made up for by Ontario ratepayers through the global adjustment fee.

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ROBERT D. KAPLAN, MD, LLC

Nov. 29, 2014

AZ Corporation Commission
1200 W. Washington
Phoenix, AZ 85007

RE: **Smart Meter Regulations**

Dear Commissioners:

As an Arizona physician, I've been approached for advice by numerous patients with EMF hypersensitivity throughout the state of Arizona.

Are you skeptical about the untoward effects of smart meters? Perhaps you might be best served by recalling skepticism generated **in the 1950s** by the book "Silent Spring," which recounts the dangers of pesticide exposure. At that time, **proponents of the safe use of pesticides were universally mocked - now we know differently.**

Continual bombardment by EMF frequencies is a serious threat to long-term health and safety, just as imprudent, long-term close-contact cell phone usage has now been conclusively shown to produce brain tumors in humans.

There's good reason numerous California municipalities as well as foreign governments have banned the utilization of smart meters.

I urge caution in allowing public utilities in Arizona the unfettered ability to place meters at will within our communities, often forcing citizens to install meters under threat of punitive fees. **Please allow Arizona citizens the continued ability to opt out of the smart meter program.**

Sincerely,



Robert Kaplan, MD

P.O. Box 28696 Scottsdale AZ 85255 (480) 991-7478

**May 17, 2011****Re: Smart Meter Accommodations**

I, B. Robert Crago PhD, am a licensed psychologist in Arizona. I have worked as a specialist in the area of behavioral medicine for the past 31 years in Tucson, Arizona. My specialties have included the evaluation and treatment of numerous individuals with environmental sensitivities to chemical and electromagnetic pollution. I have conducted research and published peer-reviewed articles on the health effects of exposure to environmental toxins. I serve as an advisor to the Human Ecology Action League of Southern Arizona. As a certified Disability Analyst, I have conducted numerous evaluations of those who have become disabled because of exposures to environmental toxins.

I am aware that "smart meters" are now being installed by the utility companies. These devices can cause adverse health effects due to increased radiofrequency radiation exposure to a number of individuals. Vulnerable individuals include those who have already become disabled due to exposure to environmental toxins and electromagnetic pollution. Other vulnerable individuals include children, developing fetuses, the elderly, and individuals with autoimmune diseases.

This letter is written to request appropriate accommodations for those who are already disabled and/or those who are vulnerable. Specifically, these individuals should not have smart meters installed in their homes or businesses.

If you have any other questions please feel free to contact me.

B. Robert Crago Ph.D

Licensed Psychologist, State of Arizona, Certificate #866
National Registry of Health Care Service, Providers in Psychology, Certificate #30209
ASPPB Certificate of Professional Qualification Psychology, CPQ #2058
American Academy of Pain Management - Diplomate #3937
American Board of Disability Analysts, Senior Disability Analyst and Diplomate #2478-96
Certified Quantitative EEG - Technologist #13
Biofeedback Institute of America - EEG, Fellow: Certificate # 1022
Senior Fellow of the Biofeedback Back Institute of America: Certificate # 130298
Board Certified Diplomate Fellow in Geriatric Psychology (GCICPP)

Arizona State Commissioners,

My daughter, at 16 years of age (May 2011), almost died after 3 months of debilitating illness from the smart meter being put on the house. She had flu symptoms a few days prior to the installation of the smart meter on our house. Shortly after that time the symptoms escalated to the point where it was hard for her to keep any food down and she actually experienced projectile vomiting. Besides losing weight from having extreme difficulty eating, she could not be around wifi, DECT phones, and other ultra high-frequency emitters. Being a normal teenager before the smart meter, she was online, and connected by wifi all the time. EMF radiation did not bother her before the smart meter was installed on our home. After the installation she also could not sleep at night, and had extreme anxiety. Before the smart meter she had not experienced these problems. My daughter also experienced extreme, crushing chest pain when we went to the Valley to visit family and we would have to cut our visit short and flee the valley, not even able to stay a whole day. As soon as we got past New River on I-17, going north, she would start to feel better. It was not psychological, as the day before the smart meter was put on the house there were no problems, and we didn't even know there was such a thing as electromagnetic sensitivity. A friend told me about it after my daughter got so ill.

After 3 months of my daughter suffering, APS decided to let people opt-out because there were so many complaints and we were able to get an AMR, once a month drive by bubble up meter. My daughter started to get better, although it was slow. We got an analog meter when the AZCC ruled that the utility companies had to give their customers this option. To my surprise, my legs, which had started hurting when I stood for long periods of time with no diagnosable cause, no longer hurt and I could stand for more than 45 minutes at a time without severe pain. I could cook and clean again. In addition, as with many other people, my allergies have increased to a point where I cannot lead a normal life, which all started when the smart meters came to town. A close friend of mine got leukemia right after a smart meter collector box was put not far from her home. She was able to opt out and keep her analog meter, but there was the big, shiny box a few hundred feet away from her. This is wrong. What happened to the Declaration of Independence that stated we have the unalienable right to "life, liberty, and the pursuit of happiness"?

"We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness.--That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, --That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness. Prudence,

indeed, will dictate that Governments long established should not be changed for light and transient causes; and accordingly all experience hath shewn, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same Object evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such Government, and to provide new Guards for their future security."

How has this happened in our country? Why have the individual's rights to life been denied? Scientists in the EU, especially Germany, are proving EMF's from smart meters are health hazards. We should have the right to have analog meters, especially when it is a critical health issue, and we have the right to not be billed excessively for an analog meter. How the Arizona Department of Health conveniently avoided valid research that proves everyone is affected by smart meters, and all the EMF emitting devices being installed, is beyond me. As this letter is read, everyone is experiencing calcium ions leaking through their cell membranes because of smart meters, wifi, cell phones, and cell phone towers. Research in the EU is also showing how pulsed radiation, like that of smart meters, is much more deleterious to biological organisms than non-pulsed emfs.

Perhaps some of us are more sensitive, as we have not lost the innate ability to sense and feel danger, and perhaps those of you that do not feel the effects of EMFs in the environment have lost the genetic prowess to sense this deleterious peril.

APS's proposal of a \$75 dollar install fee, and \$30 a month billing fee is extreme, and is a cruel punishment for us to avoid health issues we did not ask for. My daughter and I deserve a normal lives without being billed this excessive amount of money per month. Because we have an analog meter we had to consent to not having the off-time reduced rate between 7 p.m. and 12 p.m., but pay full price for our electricity. So, we are already paying extra for having an analog meter, how much more money does APS need when all we are ask for is the rights our country's founding fathers said that we deserve—life, liberty, and the pursuit of happiness.

Sincerely,

Sandra L. Wilker Svaco
Former Licensed Clinical Laboratory Specialist in Cytogenetics



Elizabeth Kelley's Biographical Statement

Since the mid-1990s, Ms. Kelley has been a public advocate on EMF and health and policy issues related to infrastructure and devices that harness electromagnetic radiation. She has made innumerable public presentations to state and national officials in the U.S. and in other nations. She founded and directs the Electromagnetic Safety Alliance, Inc. based in Tucson, Arizona and is the Coordinator for Arizonans for Safer Utility Infrastructure, where she has been challenging the installation of automated "smart" utility meters on residences in Arizona.

Starting in 1997, she managed a major policy appeal to the U.S. Court of Appeals, challenging the Federal Communications Commission radiofrequency human exposure guidelines for being inadequate to protect health. The court combined three filings, one from Ad Hoc Association of Parties Concerned about the FCC's RFR Human Exposure Guidelines; one by the Cellular Phone Task Force on behalf of persons who are electrically hypersensitive and, one on behalf of electrical and telecommunications workers by the Communications Workers of America. The court denied the case and a subsequent appeal to the U.S. Supreme Court was denied in 2000.

She was managing director for the International Commission for Electromagnetic Safety (ICEMS), based in Italy (www.icems.eu), until 2010. During her tenure, Ms. Kelley participated in many international scientific conferences that resulted in resolutions calling for more protective EMF exposure standards and the development of biologically based standards. She developed an educational program to educate teens and young children on cell phone safety, under a grant from the California Endowment.

A 2010 Harpers Magazine article by Nathaniel Rich identifies Ms Kelley as "the voice for EMF safety" in the U.S. for many years. She was co-producer of the award winning documentary film "Public Exposure, DNA, Democracy and the Wireless Revolution". In 2009, she was named "Friend of the Consumer" by CODACONS, an Italian national consumer advocacy organization.

Ms. Kelley earned a Masters degree in public health administration from the University of Southern California, followed by a career as an analyst in the Office of the Secretary at the U.S. Department of Health and Human Services in Washington D.C. Other related professional affiliations include Advisor to the International EMF Alliance in Norway, Honorable Member in the North American Institute for Building Biology; and, past membership in the International Bioelectromagnetics Society.

She is the daughter of a prominent electrical engineer, Floyd L. Goss, who was chief electrical engineer and power executive for the Los Angeles Department of Water and Power; chief designer of the first electrical power grid infrastructure in North America during the 1970s following power outages in northeast corridor; and, co-founder of the North American Electrical Reliability Council (NERC), which is authorized by the U.S. Congress to advise the U.S. Department of Energy.