

June 24, 2013

Arizona Corporation Commission
Docket Control
1200 W. Washington St.
Phoenix, AZ 85007

Docket E-00000C-11-0328 Smart Meters

**The Safer Utilities Network rationale and recommendations
for smart meter guidelines**

The Safer Utilities Network and others have presented the Commission with much documentation that smart meters are not benign, as claimed by the utility industry.

We have provided this Commission with epidemiological evidence that the radiation from smart meters can have serious impact on humans, especially children, under normal conditions.¹ Studies have implicated a variety of effects, such as:

- leukemia
- breast cancer
- brain cancer
- ADHD
- insomnia
- headaches

We have also presented a preliminary survey of 210 people who have been harmed by a smart meter (wireless or PLC).²

The BioInitiative Report³ provides strong evidence that the current radiation limits set by the Federal Communications Commission (FCC) are outdated and not protective of the public health.

¹ See our filing *What epidemiological studies reveal about health effects from wireless smart meters* in this docket (ACC E-00000C-11-0328), May 30, 2013.

² See our filing *Preliminary survey of people affected by smart meters*, (ACC docket E-00000C-11-0238), June 20, 2013.

The BioInitiative Report is a digest of current research on biological effects from electromagnetic radiation. It is authored by 29 scientists and public health professionals from ten countries, and provides a wealth of evidence of harm to humans from radiation similar to that from smart meters (i.e. frequencies, field strengths, etc.).

The American Academy of Environmental Medicine, an organization of practicing physicians, states that:

The FCC guidelines are therefore inadequate for use in establishing public health standards.⁴

The American Academy of Pediatrics states:

Children are disproportionately affected by environmental exposures, including cell phone radiation. The difference in bone density and the amount of fluid in a child's brain compared to an adult's brain could allow children to absorb greater quantities of RF energy deeper into their brains than adults. It is essential that any new standards for cell phones or other wireless devices be based on protecting the youngest and most vulnerable populations to ensure they are safeguarded through their lifetimes.⁵

³ See our filing *The BioInitiative report documents health effects far below the current RF limits in the United States* in this docket (ACC E-00000C-11-0328) on May 30, 2013 for further introduction to this report, including list of authors and the table of contents. For the full report, please see www.bioinitiative.org.

⁴ Statement to the California Public Utilities Commission, January 19, 2012. See our filing in this docket (E-00000C-11-0328) on June 10, 2013.

⁵ From a letter sent to Congressman Dennis Kucinich, December 12, 2012, as quoted in Section 1 of the 2012 BioInitiative Report.

The health officer of Santa Cruz County, California, states in a memo to the county Board of Supervisors:

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.⁶

The European Environment Agency (the equivalent of the EPA in the United States) has also criticized the present radiation limits:

To reconsider the scientific basis for the present EMF exposure standards which have serious limitations . . .⁷

The Council of Europe, an advisory body to the European Parliament, has also stated that the present radiation standards have “serious limitations” and need to be reconsidered.⁸

The FCC radiation limits are among the most lenient in the world.⁹ To claim that a smart meter is safe, simply because it adheres to the FCC limits, is simply without merit.

Many independent scientists and physicians have spoken out against smart meters.^{10 11}

⁶ *Health Risks Associated With SmartMeters*, Poki Stewart Namkung, M.D., M.P.H., Health Officer of Santa Cruz County, California, January 13, 2012. www.santacruzhealth.org/pdf/2012_Report_on_SmartMeters.pdf

⁷ *Statement on Mobile Phones for Conference on Cell Phones and Health: Science and Public Policy Questions*, Washington D.C., September 15, 2009. Quoted in *Late lessons from early warnings: science, precaution, innovation*, European Environment Agency Report 1/2013, Chapter 21, page 547.

⁸ *Resolution 1815: The potential dangers of electromagnetic fields and their effect on the environment*, Council of Europe, May 2011. Sections 4, 8.1.2 and 8.4.3.

See our filing in this docket (ACC E-00000C-11-0328) of September 20, 2011.

⁹ *Long-Term Exposure to Microwave Radiation Provokes Cancer Growth: Evidences from Radars and Mobile Communication Systems*, I. Yakymenko et al., *Experimental Oncology*, 2011, 33, 2, 62-70.

¹⁰ *Smart Meters: Correcting the Gross Misinformation* is a protest signed by 54 scientists from 21 countries. The version with 40 signatures was entered into this docket (E-00000C-11-0328) on May 30, 2013. The newer version with 54 signatures is available on <http://maisonsaine.ca/smart-meters-correcting-the-gross-misinformation/>.

The Council of Europe Resolution 1815 voices concern about the health effects from today's level of wireless radiation, particularly on children and people who are electrosensitive.¹²

At your September 8, 2011 hearing, an epidemiologist hired by Arizona Public Service testified. Dr. Leeka Kheifets claimed that electrical hypersensitivity, EHS, is not related to radiation from wireless devices.

Dr. Kheifets' opinions are not the consensus of the scientific community. We provided you with a statement by Dr. Samuel Milham, who is also an epidemiologist with extensive experience in this field. His view contradicts that of Dr. Kheifets.¹³

We brought to the Commission's attention that there is strong evidence that special interests influence biological research for financial gain — a practice that also persists with regard to finding health effects from electromagnetic radiation.¹⁴ Such "cigarette science" is designed to confuse policymakers in order to stall meaningful regulation of wireless devices.

We have also brought to the Commission's attention that Power Line Communication (PLC) smart meters are not an acceptable alternative to wireless models. They communicate by creating transients ("dirty electricity") on household wiring and distribution lines along the street, which turns them into

¹¹ Statement about smart meters to the California Public Utilities Commission from the American Academy of Environmental Medicine, January 19, 2012. See our filing in this docket (E-00000C-11-0328) on June 10, 2013.

¹² *Resolution 1815: The potential dangers of electromagnetic fields and their effect on the environment*, Council of Europe, May 2011. Sections 8.1.4 and 8.3. See our filing in this docket (ACC E-00000C-11-0328) of September 20, 2011.

¹³ See our filing in this docket (ACC E-00000C-11-0328), September 20, 2011. This filing also includes additional support for people with electrical hypersensitivity, including Resolution 1814 from the Council of Europe, section 8.1.4.

¹⁴ See our comment on the APS opt-out proposal (ACC docket E-00000C-11-0328) on April 29, 2013. See also *The Real Junk Science of EMFs: Stop Electric Field Cancer Research, Say Industry Scientists*, Microwave News, November 2009, <http://microwavenews.com/junkscience.html>.

unintentional antennas.¹⁵ This type of system also has security and privacy problems, especially since the most common PLC systems apparently lack encryption.¹⁶ It would be an unfortunate outcome if the rising acceptance of the health effects from wireless radiation resulted in more widespread adoption of PLC technologies instead.

Some utilities claim that an opt-out is an unreasonable burden to provide. Others have said their cost is \$30 a month to send out a monthly meter reader. If the utilities would be a little flexible, there are simpler and cheaper methods that have been in use for decades by other utilities, such as self-reporting and less frequent meter readings.¹⁷ We are pleased to see that Tucson Electric Power (TEP) now offers a self-reporting opt-out for \$5 a month.¹⁸

Monetary consequences of smart meters

Smart meters have a variety of monetary consequences, both obvious and hidden. People may accept a smart meter for various reasons. Most people are not aware of the health risks, and assume that government regulations will keep them safe. Some will be aware of the risk, but accept it. Some people may be, in effect, forced to have a smart meter: because an opt-out is not available to them, or the opt-out fee is too high for them, or in situations where their neighbor's meter is close by.

The monetary consequences of health effects are difficult to estimate. They may include lost income due to sick days, lost raises or promotions, and direct health expenses, which can be a very serious financial burden.

Some households may decide to try other solutions than an opt-out. One method is to move the meter to a pedestal in the yard, or to a garage. This will cost at least \$1,000 and is not feasible in many cases.

¹⁵ See our filings (ACC docket E-00000C-11-0328) on November 30, 2012; September 10, 2012 and October 31, 2011.

¹⁶ See our filing (ACC docket E-00000C-11-0328) on April 24, 2013.

¹⁷ See our filing (ACC docket E-00000C-11-0328) on November 28, 2012.

¹⁸ *Utility 'smart meters' raise health, expense concerns*, James S. Wood, Arizona Daily Star, May 16, 2013.

Taking an existing house off the grid to avoid a smart meter is costly and complicated to do correctly.¹⁹ It means a significant change of lifestyle for all members of the household, which may not be acceptable. An off-grid home also requires technical skills to operate, which many do not possess. Moving a household off the grid is not feasible for the majority of people.

People living in apartments or condominiums with a meter on their outside wall may have no other choice than moving away. As people become more aware of the health risks of smart meters, landlords may find an apartment with a bank of smart meters outside difficult to rent out. Owners of such condominiums or townhouses may see a decline in their property values.

It is well known that electrical transmission lines lower property values, though the unsightliness also plays a role.

People who choose to opt-out will likely be charged an up-front fee and a monthly fee. There are other costs associated with an opt-out, however. People who opt-out will likely have to pay a higher cost for their electricity as well — a cost which may further increase if the utilities try to recoup their opt-out costs by raising the prices. The people who need the opt-out the most are those who are already sick.

Most people with a disability live on a reduced income, sometimes very little. We know one elderly disabled lady who must have an opt-out, and whose total monthly income is \$730. A \$10 extra monthly expense is 1.37% of her total income. For a high-earner with an annual income of \$100,000, that amounts to \$1,370 annually. Though a high-earner would probably have no problem paying \$1,370, people on a low income do not have discretionary income available.

Arizona Public Service²⁰ plans on offering an opt-out with an up-front fee of \$75 and a monthly fee of \$30. For our \$730-a-month disabled elderly lady, the up-front fee is 14.4% of her monthly income and the monthly fee is 4.1%. This is not reasonable.

¹⁹ One Arizonan had her house evaluated for taking it off the grid to avoid smart meters. The report is available at www.eiwellspring.org/offgrid/Takehouseoffgrid.htm

²⁰ See APS filing of March 25, 2013 in docket E-01345A-13-0069.

Apartments, townhouses and condominiums

People living in townhouses, apartments and condominiums can be particularly affected. They may have a bank of a dozen smart meters on their wall, or across a passageway.

With the small spaces of such dwellings, it is an unreasonable hardship to abandon the room nearest the meter bank in an attempt to avoid the radiation.

It is unlikely that several neighbors will agree to opt-out. In the cases where a neighbor agrees to opt-out, the extra cost is generally carried by the person with the need for the opt-out.

A recent survey documents the hardships imposed upon people with close-by neighbors.²¹

As people become more aware about smart meters, it may become more difficult to sell a townhouse or condominium with a bank of smart meters on it.

People of low income have few options for suitable housing they can afford.

Other issues

It is unreasonable to expect the ratepayers to understand all of the technologies. Some have been surprised to see that their old analog meter was changed when they switched to a time-of-use rate plan. It is therefore imperative that a utility informs an opt-out customer when a change of rate-plan will result in a smart meter being installed — especially if the company discourages or prohibits correcting the problem by re-installing an analog meter.

Opt-out customers must have the same legal rights as all other customers. An opt-out plan cannot require people to sign away any legal rights enjoyed by other customers. Such discrimination is a violation of ACC Statute 40-334.

Weighing the evidence

A reasonable approach is to consider the weight of the evidence, with a healthy skepticism towards what is funded by special interests.

²¹ See our filing *Preliminary survey of people affected by smart meters*, (ACC docket E-00000C-11-0328) on June 20, 2013.

The argument is often made that the mechanism of harm is not understood and therefore evidence of harm cannot be considered. However, other health problems are accepted, even though much of their mechanisms are still mysterious. Several types of cancer are in this category, for example.

There is still no way to prove that a person has a headache or is in pain. But, we've all had those experiences, so it is accepted that they exist.

It is normal for scientists to argue with each other in their papers. It takes time for consensus to arise, especially on a complicated matter that threatens well-funded special interests.

It is also normal for some studies to show no effects. It is easier to arrive at a "no effect" result than one that shows an effect simply because of the high bar of statistical proof.²² As more studies are done by conscientious scientists, they are refined and better able to show effects.

As we have demonstrated, there are already many studies available which show harmful effects from the type of radiation people are exposed to from smart meters.

It is prudent to provide relief based on current evidence, rather than waiting for full proof, which is likely to take decades, resulting in much harm in the interim. To quote the BioInitiative report:

Good public health policy requires preventative action proportionate to the potential risk of harm and the public health consequences of taking no action.

— BioInitiative report, section 1, part III

Allowing all Arizonans to opt-out at a cost anyone can afford is simply good public policy.

Consider the potential cost of no action: that some people are forced to have a smart meter, or the cost to opt-out is high enough to discourage people from doing it. What are the personal and societal costs of the potential health effects?

²² *Doubt is their product*, (chapter 6) David Michaels, Oxford University Press, 2008.

On the other hand, what is the cost to the utilities providing an opt-out? If we assumed that APS provided an opt-out gratis to 5,000 customers, and that their estimated cost really is \$30 a month per customer, their cost would be \$1.8 million annually. This is a fraction of what the company pays even one of their executives.

Limiting the radiation

The radiation from a smart meter is largely a result of how much of the time it transmits, which is called its duty cycle.

Second-best to no smart meter is one which transmits very little. Much could be accomplished with very few transmissions, if the meters were designed with health in mind. Such designs would better protect the health of the general population, though still be insufficient for people who are hypersensitive. Unfortunately, the trend is for the meters to transmit more and more, not less.

Mesh smart meters transmit particularly frequently. Only a small part of the traffic is actually carrying metering information for the meter itself. The rest of the transmissions are for network management functions and passing along information from other meters.

According to court-ordered disclosures²³, a mesh smart meter typically transmits about 10,000 times a day, and may transmit up to 190,000 times a day.

Some smart meters have an additional Wi-Fi transmitter as well, for local communication with appliances inside the house. This is often referred to as a Home Area Network (HAN). Such a transmitter is likely to continuously transmit a message like “hello, I’m smart meter ABC123”, even if there is no other HAN-capable equipment in the area, so these transmissions serve no purpose.

This Commission should require the utilities to disable such transmitters by default, and only turn them on at the request of the ratepayer. That is simply good public health policy.

Smart meters with these Wi-Fi transmitters can be used to provide new services that are unrelated to utility metering and management functions. An example is in

²³ See our filing *How often wireless smart meters actually transmit*, (ACC docket E-00000C-11-0328) on April 30, 2012.

Santa Clara, California,²⁴ where the smart meters are also used to offer consumers internet access. Such a service will create much additional traffic, i.e. radiation. As the smart meters use each other to relay messages, it affects residents who do not subscribe to the service.

These technologies are not yet in use in Arizona, and should be disallowed.

Conclusion

Several Arizona utilities have chosen to install AMR/AMI smart meters. They did this of their own will, looking to the expected operational savings. Had it not been for this financial reason, there would be no smart meters.

As we have shown, there is significant science behind our claim that this technology can have health effects.

The health effects are the same regardless of who delivers the electricity, whether it is a rural co-op or a large investor-owner utility. People are affected the same whether they are rich or poor, though the rich have many more options for medical treatment and mitigation.

Allowing all Arizonans to opt out of any type of AMR/AMI meter is imperative. It is also imperative that people are not discouraged from opting out by high fees. It is reasonable that some of the operational savings are used to lower the fees.

Providing an opt-out for all is a compromise. It balances the competing interests of the utilities and the people concerned with the health, privacy, and security implications of smart metering.

The industry should start looking at the alternatives to wireless and PLC, and ask their vendors to develop technologies with less health impacts, including reducing the transmissions to a minimum and completely avoiding superfluous transmissions. Healthier options should be rolled out as reasonably practical.

²⁴ *Santa Clara uses smart meters to create citywide free Wi-Fi*, Martha Mendoza, Associated Press/Christian Science Monitor, March 27, 2013.
www.csmonitor.com/Innovation/Latest-News-Wires/2013/0327/Santa-Clara-uses-smart-meters-to-create-citywide-free-Wi-Fi

For the present, we ask the commission to adopt the following common sense recommendations:

1. Opt-outs must be available to all utility customers in Arizona.
2. Opt-outs must include any type of AMR/AMI meter, not just wireless.
3. Opt-outs must include meters for electricity, gas, and water.
4. The fees must be nominal.
5. No fees for people on low income.
6. Discounts must be available for adjacent meters.
7. Opt-out customers must have the same legal rights as other customers.
8. Utilities must inform an opt-out customer if a rate-change requires installation of a smart meter, and change the meter back promptly when mistakes happen.
9. Smart meters shall not be used for purposes unrelated to utility metering and management. Unrelated purposes include Wi-Fi internet access for consumers.
10. Smart meters must be installed with any HAN-like capability disabled as the default. It must only be turned on at the request of the customer.
11. Collector units (aka Gatekeepers) cannot be installed on private homes without written consent of the property owner.
12. Smart meters must use encrypted communication on any shared, or potentially shared, media (wireless, PLC, etc.). Existing systems may be grandfathered.

Submitted on behalf of:
Safer Utilities Network
P.O. Box 1523
Snowflake, AZ 85937