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

Docket E-00000C-11-0328 Smart Meters

Comments on the Texas Public Utility Commission smart meter report

The report *Health and RF EMF from Advanced Meters — An Overview of Recent Investigations and Analyses*, was entered into this docket on June 28, 2013, by Steven M. Olea, Director of the Arizona Corporation Commission's Utility Division. This document is henceforth referred to as the Report.

The Report was prepared by Alan Rivaldo, who is a staff member at the Texas Public Utility Commission, where he works on cyber security and smart grid technology issues.

The Report is dated December 2012 and listed as Project No. 40190.

Setting the tone

Several pages of the Report are used to discredit the opposition in a manner that is surprising for a document published by a public entity.

The theme throughout the Report is that the opposition is based on myths and hysteria, propagated by social media, and totally lacks scientific support. This is a very one-sided assessment, based on cherry-picked evidence.

The Report resorts to personal attacks on five people, including two American physicians who have voiced their objections to wireless smart meters.

The reader is informed that some vendors are selling talismans and dietary supplements with wild claims that they protect against EMF. These kinds of dubious products have appeared in response to many health problems throughout human history. As none of them are endorsed by any serious player opposing smart meters,

their existence is irrelevant to this discussion. Mentioning them is simply a propagandistic effort to smear the opposition.

Some YouTube videos made by individuals are also highlighted as examples of unscientific materials. These videos are not what the concerns rest upon.

The physician William Rea testified before a committee of the Texas legislature regarding smart meters, so the Texas PUC report spends some effort to discredit him. Dr. Rea is a medical pioneer who has treated many patients with electrical hypersensitivity (EHS) and other emerging illnesses. He has helped many people and the walls of his clinic are filled with awards from many societies. The medical establishment often frowns upon the unorthodox methods of medical pioneers. The classic example is Dr. Ignaz Semmelweis, who advanced the field of hygiene (Wikipedia).

Two cases of scientific misconduct are presented. The unstated implication is that much (all?) evidence of health effects from EMF is based on fraud and unscientific methods. The reference is to a website with a dubious reputation, and the story is not as simple as presented. The case of Hugo Rüdiger is discussed at length in the book *Disconnect*, by Devra Davis, Ph.D, MPH. When the scientific journal that published Rüdiger's findings was informed about the allegations, it launched an investigation and concluded there was no fraud, and the article was not retracted. The Rüdiger case appears to be an effort of the cell phone industry to harass and discredit a researcher who produced results damaging to these special interests. The book *Disconnect* mentions various such cases.

The Report is not above using tactics similar to what happens in some political campaigns. This is unworthy of a public institution and of a report which repeatedly paints itself as being scientific and objective.

Looking at the medical evidence

It is very conspicuous how little space is used in the Report to look at the scientific background for the concerns about wireless devices, such as smart meters. A reader who is not familiar with the literature would make the conclusion that there is none, which is very misleading.

The BioInitiative report (2007 edition) is briefly mentioned, and dismissed by citing some of the criticism of it, while not mentioning any of the positive reception it has had, such as at the Council of Europe and the European Environment Agency. The BioInitiative report (now available in the 2012 edition) is produced by a large group

of independent scientists from several countries. It correlates the entire body of science on the subject of non-thermal effects of electromagnetic radiation. To simply dismiss this body of evidence, and the thousands of studies it cites, is a clear bias. The Report makes no attempt to look at any of the actual medical evidence.

One-sided choice of sources

The Report places great weight on sources focused on promoting the smart grid, not sources focused on public health.

The Electric Power Research Institute (EPRI) is referred to very prominently in the Report. Its publications are cited several times and the same publications have also been the foundation of the opinions of other entities cited in the Report (such as the California Council of Science and Technology).

The author of the Report even echoes the EPRI stance that there are no long-term health effects from cell phones, contrary to that of the World Health Organization (WHO). The WHO's cancer panels are not known for their snap judgments, and should be much more qualified to make such assessments than techno-centric EPRI. However, the Report's author almost mocks the WHO evaluation of cell phones' health effects.

EPRI is portrayed as an "independent" organization with the implication that they are not beholden to special interests. The reality is that EPRI is closely aligned with the utility industry, on which it is almost fully dependent for funding. We are not aware of any case where EPRI has published anything contrary to industry interests.

The Smart Grid Technical Advisory Project (SGTAP) is another group focused on advancing the smart grid, which carries great weight in the Report. According to SGTAP, the findings on health effects from the use of cell phones do not have any bearing on smart meters. It is true that there are important differences. A cell phone imparts a higher level of radiation, for a limited period of time, while a smart meter provides chronic radiation at a lower level. However, it is important to realize that the announcement by the World Health Organization was not limited to cell phones.

Since the issue is involuntary chronic radiation of the entire population, is it really reasonable to accept ever smaller differences, as reason to ignore the body of research? Even if presented with a large and impeccably managed epidemiological study of smart meters on real people, the industry is very unlikely to accept it. They will surely find reasons to criticize and demand more studies and more delays on any

form of measures. These tactics have worked so well on other issues, of which tobacco, leaded gasoline and asbestos are just the well-known examples.

One of the very few medical sources cited is a Swedish paper, where the primary author is Anders Ahlbom. Ahlbom has been deeply involved in the issue of EMF health effects and served with ICNIRP, WHO and other entities, always promoting his view of no health effects. In 2011 it was revealed he co-owned a firm that specialized in lobbying on behalf of the cell phone industry. He was asked to step down as chairman of WHO's radio-frequency cancer board (IARC), but remains influential in the debate (Microwave News, 5/22/11).

The possible conflicts of interest in the sources prominently cited by the Report is briefly mentioned and dismissed. This is despite the large body of evidence available that this is indeed a major problem. See our April 29, 2013 filing in this docket (E-00000C-11-0328) for lists of books and peer-reviewed articles on this topic.

The opinions of several public utility commissions and other public bodies are listed in the Report. Again, their focus is not public health, and they lack medical expertise. These entities are thus likely to use the same sources, in effect creating an echo-chamber of opinion.

The logic employed in many of these reports is based on the smart meters radiating less than the FCC limits, therefore they are deemed safe. The FCC limits were set in 1996 and are based on an outdated thermal model, which much evidence shows to be too simplistic (according to the BioInitiative report, the Council of Europe Resolution 1815, the Freiburger Appeal, the Benevento Resolution, etc.).

The Texas PUC Report refers multiple times to the obscure website www.emfandhealth.com for opinions on the medical research. This web site specializes in criticizing certain studies finding EMF health effects, but does not appear to be subject to scientific standards and review. Their tone is not exactly unbiased, either.

Radio, TV and cell towers

The Report states that they were not able to find *any* reported health complaints regarding radio and television transmitters, and little about cell towers. It speculates why it found so little opposition, since these transmitters are more powerful than wireless smart meters. The reality is very different from these speculative opinions.

These transmitters are truly much more powerful. Some large radio stations have transmitters of 100,000 watts, though they are always placed on a tall tower and generally in rural areas, so they are not close to many residences. A cell tower may transmit at 25 watts per channel, and be placed close to residences. Meanwhile, a wireless smart meter is usually placed directly on a home, with a transmitter power around 1 watt. However, the distance to the transmitter is very important, as the radiation level drops exponentially. In practice, the exposure levels are often at comparable levels from these three sources. There have been several epidemiological studies conducted on populations exposed to radio, TV and cell phone towers. Most of them show health effects at radiation levels similar to what many people are exposed to from wireless smart meters. We have presented some of these in our May 30, 2013 filing (ACC docket E-00000C-11-0328), and have since discovered more.

There has in fact been opposition to various transmitters throughout the years, but they have received very little interest in the press. The grassroots organization Cellular Phone Task Force has been operating since cell towers were first put up on a large scale in the mid-1990s.

The cell phone industry was already back then sufficiently concerned about the opposition to their installations that their lobbyists had a provision put in the 1996 Telecommunications Act (section 704), which directly prohibits siting cell towers based on health complaints. This law has discouraged many community activists.

Still, there have been many attempts at opposing new towers. They could just not use the health issues as an argument before any zoning authorities. Sometimes the site owner has been convinced to not allow a tower on their property, as was the recent case with Robins Elementary School in Tucson. With a site owner typically being paid $10,000-$15,000 a year to host a tower, it is a hard sell.

There have even been violent citizen actions against transmission towers, such as the 2010 destruction of the two KRKO AM radio towers in Snohomish Valley in Washington state. We are familiar with similar stories from Ireland, Germany and Australia.

There have been various protests, such as by the firefighters' union, claiming siting transmission towers on fire stations have made several of their members sick. British police officers have also complained about the TETRA police radio system.

The American documentary movie *Full Signal* interviews several anti-tower activists.

There is one low-radiation zone in the United States, around the town of Green Bank, West Virginia. The zone protects the nearby radio observatory from interference, and several people with severe electrical hypersensitivity have relocated there to escape radio transmitters. The story has been published in several foreign media (such as the BBC web site), but not much in the United States.

The city of Arcata, California has established a municipal code which prohibits the siting of transmission towers within 1000 ft (330 meters) of a home and 1500 ft (500 meters) from schools and hospitals (Arcata Municipal Code 9.44.060.A.3).

There are natural low-EMF zones in many rural areas that are far from any transmitters. Some people have quietly moved to these areas, as it is largely futile to fight the towers. Of course, towers are erected in rural areas as well, just at a slower pace and they are generally much more dispersed.

In Europe and elsewhere, the authorities have been more concerned about protecting the public health, especially for children. There are now restrictions on sale and advertising of cell phones in France and Belgium. Low-radiation zones with restrictions on tower sitings (which still allow cell phone use) have been established in Sweden, Austria and France.

There have been successful legal actions against transmitters, with three national Supreme Court rulings against tower operators:

- France – 2009
- Italy – 2011
- India – 2012

The Indian rulings are the most comprehensive, potentially resulting in the removal of thousands of cell towers in India's largest city of Mumbai, as well as in the state of Rajasthan (*Times of India*, 9/8/12 and 7/9/13).

There is no simple answer as to why the opposition to smart meters is more widespread than against other wireless transmitters. Some of the mechanisms have already been mentioned; another is that the people who are acutely affected are in poor health and low in numbers. They are easily ignored by the authorities. It is only when people who are *not* affected join the cause that the authorities are forced to pay attention, and it is easier to get people interested when a technology is forced upon them with little benefit. The growing awareness of the general issue is probably another factor.

Comments by academia

The Report mentions an open letter in support of smart meter technology, which is signed by 61 scientists and engineers, primarily in Quebec, Canada. Again, these are technical people, not medical professionals.

The Report fails to mention the open letter (*"Correcting the Gross Misinformation"*), which protests the Canadian open letter, and is signed by 54 scientists and physicians in the field of health effects from EMF. The letter was organized by David L. Carpenter, M.D., who is the subject of personal attacks by this Report.

There is also no mention of the Freiburger Appeal and the Benevento Resolution, which both are more general, but are applicable. They are both signed by physicians and scientists.

Electrical hypersensitivity (EHS)

The Report states:

> *Double-blind studies which were well-controlled and well-conducted had shown that symptoms were not correlated with EMF exposure.*

It is true that the majority of the studies do not demonstrate such a correlation, but very few, if any, of the studies are well-conducted or well-controlled.

The mentioned studies at King's College were conducted in regular offices in a regular building, with several of the test subjects getting symptoms from just being in the lab.

It is very difficult to conduct such studies on EHS patients. It requires rigorous controls of the environment, which most of the studies fail to do. Common problems include the presence of computers, fluorescent lighting and other triggers. This is analogous to asking an asthmatic to discern whether there is a cigarette smoker present in a room filled with cigar smoke.

Other problems include delayed reactions. Few people with EHS react right away and sometimes have their most severe symptoms hours later. Travel to the lab may produce symptoms that first show up after entering the laboratory.

There is also the problem that symptoms rarely turn on and off on command. Instead, the EHS patients tend to get generalized symptoms after exposures, which linger long after the exposure ends. Some people experience symptoms which then disappear with further exposures as the body adapts, but with worse effects happening the following day. These mechanisms may already be at play before the experiments even start, due to the travel to the site and the ambient levels in the laboratory. It is very difficult for most people with EHS to determine exposures with the precision demanded for these tests.

Very few of the studies have attempted to separate the effects of trauma and anxiety, which are a common result of contracting EHS, as they are for other life-altering illnesses.

Many of the studies are conducted by departments which are focused on psychiatric illnesses, which may slant their conclusions. The King's College research group published a 2012 article which puts forth the absurd idea that people with EHS simply want to live as hermits (PubMed 23288087).

The Report does not mention that EHS is recognized as a legitimate illness by the Austrian Medical Association, and as a functional impairment in Sweden. the Council of Europe has also recognized EHS in its Resolution 1815.

The physical mechanism for EHS is presently not understood. This is normal for a new syndrome, and does not mean EHS is not "legitimate". Many other diseases of the past half century were not well understood either in the beginning, such as AIDS, asbestosis, allergies and asthma. Autism and fibromyalgia are still not understood. Much is still to be learned about most of these illnesses.

General acceptance of an illness takes time, especially when it conflicts with established dogma and special interests. Meanwhile, those who are sick are subjected to the ridicule of which this Report is a mild example. With very little funding available to investigate an illness that is not "legitimate", the prospect for proving its existence scientifically is very long. AIDS became accepted as "real" once the Hollywood actor Rock Hudson contracted it. Do we have to wait for such a lucky break?

Conclusion

The Report's cover letter to the Texas PUC states that the report is *"intended to objectively address the issue."* Unfortunately, the Report cannot be considered objective, as it has a strong bias in its content, language and choice of sources.

The theme throughout the Report is that there are no legitimate concerns of any kind and the public discussion is simply a matter of science versus myth and hysteria. That the concerns of the public are simply an artifact of social media with no basis in reality.

The Report barely mentions the concerns raised by the scientific community, and instead resorts to personal attacks on some of them. None of the scientific findings upon which these concerns are based are addressed. No primary sources are used. Instead, the Report bases its conclusions almost exclusively on the opinions of techno-centric entities, which are not focused on the public health. Particular weight is given to the opinions of organizations with a focus on promoting smart grid technologies and other conflicts of interest.

The central topic of the Texas PUC report is a health issue, but the author has an educational background in engineering and business administration, with expertise in cybersecurity and smart grid technologies. He does not appear to have any medical training.

If physicians started to publicly voice their opinions on whether specific bridges or buildings are structurally sound or not, engineers would probably not find that appropriate. So why does this report almost exclusively rely on the opinions of engineers, physicists and utility-funded institutes to say with great confidence that there are no health effects from radio-frequency radiation?

The Texas Public Utility Commission would have been much better served if this Report was prepared by someone with a proper background and no strong pre-set opinions on this topic.

This Report is neither objective nor scientific, and is of limited value to a balanced debate. Some opponents to smart meters have certainly produced what amounts to propaganda, and so have some utilities, but one should not expect that from a governmental agency, funded by taxpayer money.

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