Smart Meters: A Cautionary Tale

Submitted to the FCC by
Richard Meltzer, Ph.D.
richard_meltzer@hotmail.com
(full contact info at end)
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INTRODUCTION

This submission to the Michigan Public Service Commission (MPSC) is in two parts. The first part, that follows shortly, is a summary of key points regarding the issue of smart meters. The second part is an expansive treatment of many of the core issues. Most importantly, the second section features a detailed business analysis of smart meter programs. It is believed that this business analysis will be of particular interest to the MPSC, especially in light of the recent decision by the Michigan Court of Appeals admonishing them for granting a rate approval for smart meter programs lacking justification of its cost effectiveness – and requiring the MPSC to perform a reevaluation.

This format was chosen to insure that MPSC staff can quickly reference and comprehend the most significant points. A large volume of material has already been submitted for Docket U-1700 and undoubtedly that places a burden on staff to do a proper review. Moreover, the topic of smart meters itself has many components, each capable of generating many pages of explanation and argument.

New Paradigm

It is not often stated but important to understand that smart meters are not just some kind of new meter. Rather, this new device is a computer, one that happens to be able to track usage like the old, analog meter did. But as a computer whole new issues come into play; issues that regulators and customers do not necessarily anticipate; issues for which there are no precedents within the regulatory structure.

There are at least four dimensions that are impacted by these smart meters. They are:

- Health and Safety
- Data Privacy
- Network Security
- Usage control

There is a broader issue at work here. It is evident that we are moving from a society connected by wires to a society bombarded by a rapidly increasing stream of RF radiation. But as a nation we never made a conscious decision to do so. There has been no public discussion or debate and no acknowledgement of the health risk potential nor the conflict between business interests and public health.

The MPSC will likely receive considerable input regarding health matters so that dimension will be downplayed here. Emphasis will be placed on arguments that are infrequently made. Also, given MPSC's own admission (in the "call for study") of its shortage of expertise and resources across all necessary domains mentioned above,

emphasis will be placed on the domain MPSC probably knows best – finance. On behalf of the public the MPSC must be ever vigilant to the cost of capital investments and rate hike requests by the utility companies. Consequently, it is presumed the MPSC is well equipped to analyze the "business case" for technological initiatives.

SUMMARY OF KEY POINTS

- Smart meters, unlike the older analog meters, are computers and as such open up whole new areas of concerns.

- Analysis of smart meter programs shows a failed business case and benefits only for utility companies, not consumers. (Much more on this below.)

- The smart meter roll-out has largely been a clandestine operation. Little explanation, nor any mention of nine community (now 19) resolutions in opposition to smart meters, has been presented to the public or posted at DTE or MPSC websites.

- At a minimum, customers should have the option to opt-out of having a smart meter installed – especially since they can self-report meter readings at the DTE website or by phone. Better yet, there should be an opt-in requirement wherein a smart meter is only installed by customer request.

- Large body of biomedical evidence raising concerns about long-term, continuous exposure to RF/EMF especially for children – more than enough to invoke the Precautionary Principle and dictate an immediate halt to smart meter deployment (as had been requested by most of the petitioning communities). The Precautionary Principle shifts the burden of proof from those suspecting a risk to those who discount it.

- There is an immediate need for independent field studies to measure the output of installed smart meters – in terms of signal frequency and strength. Independent research means no industry sponsorship or involvement of the testing agency. EPRI does not qualify.

- There is an immediate need to establish the baseline of current exposure to RF/EMF by the population. No organization has this data; not the government nor the utility companies. Consequences become more serious with cumulative exposure to RF/EMF. And there has been a tremendous increase in RF exposure over the past decade due to ubiquitous wireless devices including cell phones.

- Independent authorities say (in contrast to industry spokespeople):
- Smart meters exposure is 100 times stronger than that of a cell phone when full body exposure is considered.
- Field measurements of some smart meters show that they transmit regularly, tens of thousands of times per day.
- In-house measurements of smart meters show them to be far stronger than advertised due to reflective surfaces as are commonly found, for example, in modern kitchens.

- The FCC safety standards used to legitimize smart meters are out of date and inadequate. Conforming to a legal standard does not necessarily make a device safe. Current permissible power levels are considerably greater in the U.S. when compared to many other countries. Some assert that a different governmental unit, perhaps the FDA, should be the sanctioning agency, not the FCC.

- It cannot go unsaid that DTE (and presumably the other gas and electric utilities) are "For-Profit" companies. Executive salaries, bonuses, and stock dividends are predicated on profitability and $3.2 billion dollars was available from the Dept. of Energy for smart meters. It is difficult for the utilities to generate revenue by rate increases but capital investments (like smart meter deployments) are more easily supported by the MPSC. Additionally, there is a consensus that once a smart meter is installed, residents notice their bills going up. This was even observed by State Senator Vincent Gregory. These factors reflect the true nature of this project – revenue enhancement (especially in light of research showing little consumer benefit).

- It is inappropriate to consider a single smart meter in isolation. Electric, gas, and water utilities are planning to install their own. That's 3-4 smart meters on every house. And what about condo complexes and apartment buildings where dozens of meters are clustered close to living quarters – perhaps on the outside wall next to a baby crib. And what about the cumulative effect of all RF sources – whose level we don't even know and effects we don't understand.

- Smart meters will collect personal usage data in apparent violation of our rights guaranteed by the Fourth Amendment of the Constitution - to be secure in our persons, houses, papers, and effects. Ultimately this data will be worth big dollars to advertisers, appliance manufacturers, and insurance companies who will use life style data from the meters in claim and rate determination. Google has made a fortune by selling personal Internet surfing data. Major credit card companies are similarly positioning to sell consumer profiles based on their purchase behavior data. The allure of this treasure trove of riches will wear down any resistance to market this data by profit-seeking executives.

- Smart meters are involuntary. Continuous exposure to RF and having personal profile data collected will be mandatory. One chooses to use a cell phone; similarly with surfing the Internet, etc. And one can take precautions to make those activities safer. But not with smart meters.

- The Pentagon has been hacked as have all the major credit card companies and banks. Such reports appear regularly in the media. The electrical grid has been taken down in Brazil by hackers. DTE does not even begin to have the computer security expertise to attempt to control this. Computer security experts state that not a single energy utility company or distributor can pass a computer security audit. Our national security is at risk. Ultimately, **what will be the cost of establishing a new cyber security division? This is not included in any current business model.**

- Smart meters are computers and hackers can break their way into them - plant worms and viruses, disrupt service, determine when customers are home based on electricity usage patterns, alter usage and billing data, etc.

IN THE MATTER OF SMART METERS

At the time of the MPSC's call for study (docket U-17000), nine metro Detroit communities had passed resolutions questioning smart meters. Since then another ten have been added to the list. There are now 19 metro Detroit communities that have formally questioned this technology.

This is no small accomplishment and only resulted from the dedicated effort of many concerned citizens who investigated this technology and became concerned. DTE (the primary electricity provider for metro Detroit) has done a poor job of communicating with the public. It's as if they really did not want people to know, or discuss, what this transition was all about. There is no mention at their website of 15 communities taking issue with their plan. There is no mention of two pending bills in the Michigan legislature aiming to constrain smart meters (HB5411 sponsored by T. McMillan; HB5439 sponsored by P. Opsommer).

This cannot be a coincidental oversight. DTE doesn't want people to investigate because if they did many would object to this project moving forward. In general, there is considerable influence being exerted by the powerful wireless industry association to stifle the public's awareness of the potential effects of the rapidly growing exposure to RF/EMF to which we all are subjected. General exposure to RF/EMF has increased hugely in the past decade given the popularity of cell phones and cell towers, commercial microwave communication, Wi-Fi in homes and commercial buildings, coffee shops, schools, and even baby monitors. It is noteworthy to mention that a number of schools have removed their Wi-Fi given the concern of negative effects – especially on young children.

ROLE OF THE MPSC

MPSC is deemed to be a watchdog agency that "assures safe and reliable energy . . . at reasonable rates" and to "provide customers with the opportunity to choose alternative [service] providers". It is also charged with insuring the security of the state's infrastructure by promoting Homeland Security (from Mission Statement).

MPSC has responded to the nine (now nineteen) civic resolutions regarding smart meters with a "call for study." Though this was a responsive action, there are concerns with the details of the "call for study." Conspicuous in the wording of the edict is:

- The failure to curtail current smart meter deployment in spite of nearly all the communities requesting immediate cessation pending the outcome of the study.

- The absence of any attempt to bring in domain experts to serve as independent advisers. Expertise is need in the four dimensions described earlier – health and safety; personal data privacy; network security; and usage control.

- MPSC's own admission that it may be limited in its ability to perform a full-scope analysis due to a shortage of in-house expertise and supporting resources. This

underscores the need for independent experts, which should likely include professors from Michigan research universities.

- The absence of a clear statement requiring analysis of health effects. Nowhere does the word "health" appear in the MPSC list of questions posed for response. Perhaps "safety" is construed as synonymous with health? But safety has elsewhere been used to describe fire hazards associated with mounting smart meters on homes and buildings.

- Missing a call for **objective, independent** field studies. Random samples of current baseline RF readings should be made throughout affected areas, especially high density areas. Similarly, random sample RF readings should be made near smart meters to determine the actual emission level and frequency of broadcast. This must be reported as REAL TIME measurement – no averaging, smoothing, etc. should be done. Transient spikes should in no way be suppressed.

- Though cautionary statements are cited in an earlier MPSC research report, these same cautionary statements were disregarded in the Conclusions section (see "Report On the Impact of Radio Frequency Emissions From Smart Meters", Aug. 3, 2011). One wonders about preexisting bias.

THE FAILED BUSINESS CASE

Smart meters are not brand new nor are they used exclusively in the U.S. Smart meters have been deployed in many countries throughout the world and numerous studies have been conducted examining the effectiveness of those smart meter programs. Common themes that run through those studies are that smart meters do NOT benefit customers; that utility companies do not understand the needs of customers; that utilities are poor at communication and often dictate to customers; and that the utilities have a poor grasp of the cost structure of smart meter programs.

"*We thought we were undertaking an infrastructure project but it turned out to be a customer project.*"
Chris Johns, President of PG&E
Proceedings of BECC Conference, 2010

VaasaETT (http://www.vaasaett.com) is a global energy think tank that has done considerable business analysis of smart meter programs throughout the world including the U.S. Here is a summary of their key findings:

- As a technology. . .smart meters provide more benefits to the utilities than to the end consumers.

- Smart Meters do not benefit the environment without proper regulation.

- There are basic conflicts of interest caused when a utility which earns [profits] off of electricity sales, is asked to lower those sales through helping consumers lower consumption.

- Smart Meters and the communication technology required for energy efficiency programmes are expensive. . . They are therefore not necessarily appropriate . . .where household consumption is low.

- Regulators should calculate the impact of smart meter rollout, dynamic pricing structures and new tariffs on vulnerable consumers.

- Regulators and utilities should take into account that an increase in costs for consumers should be included only with a method for controlling those costs . . .

In Australia, Marco Bogaers, Chief Executive Officer of Metropolis, the largest operator of residential smart meters within Australia's National Electricity Market, submitted to Ms. Sandra Denis, Director of Resources and Environment, Dept. of Treasury and Finance, a report titled "Review of the Advanced Metering Infrastructure (AMI) Program" [smart meters]. (Report available from this author upon request.)
Excerpts of the report's key points follow:

- Negative feedback around the world is driven by the perception that smart metering benefits electricity suppliers and not individual consumers.

- What is clearly needed is a grounded understanding of how benefits will accrue and, more importantly, how the accrued benefits will be passed on to consumers. That understanding . . .is not known now, and has never been known. **Given this morass it is unlikely that the AMI Program will ever achieve a net-positive position and the AMI Program must be immediately suspended.**

- The only way to achieve customer satisfaction in the implementation of smart metering is to focus on the delivery of consumer benefits, not the delivery of advanced metering infrastructure. **Consumers must be engaged not alienated.**

- Our job is to promote and offer 'benefits' **with consumers exercising their right of choice** based on the delivery of those benefits. No other rollout model should be considered and for this reason **any notion of an accelerated rollout must be abandoned.**

- **If demonstrable benefits cannot be offered then smart metering should not be adopted.**

- A valuable lesson can be learned from the AMI Program. The maxim is simple – focus on the outcomes . . . **rather than dictate the solutions in the (vein) hope of achieving the outcomes.**

George Jepsen
Attorney General of Connecticut
http://www.ct.gov/ag/lib/ag/press_releases/2011/020811clpmeters.pdf

- "Replac[ing] existing electric meters with advanced technology [smart meters] would be very expensive and would not save enough electricity . . . to justify the expense."

- Regulators should “only approve installation of the advanced meters when they are cost effective.”

- The Connecticut pilot “showed no beneficial impact on total energy usage. And, the savings that were seen in the pilot were limited to certain types of customers and would be far outweighed by the cost of installing the new meter systems,”

- Lastly, Jepsen noted that smart meters only “have a useful life of 20 years and replacing them early would incur additional costs for customers.” This is in contrast to the older, traditional meters that have at least twice the lifespan of a smart meter.

The real energy issue for society is energy efficiency. There are many energy analysts who believe the money being put into smart meters is a waste and that a far better investment would be to redirect funds into improving the current infrastructure. One such expert is Dr. Martin Kushler (see below). His comments, along with several other experts, recently appeared in a smart meter article entitled “To Watt End?” published in Crain’s Business Detroit, Feb. 12, 2012:

Dr. Martin Kushler
Senior fellow with the American Council for an Energy-Efficient Economy; previously Supervisor of Evaluation at the Michigan Public Service Commission for nearly ten years

- "I just simply don't see any evidence that smart meters reduce total energy use, and I would not characterize them as being an energy-efficiency measure."

- "They are a load management measure, trying to influence when people use energy -- not how much they use."

- Dr. Kushler has reviewed more than a dozen studies of pilot programs involving smart-meter installations in six states in the past five years. It was concluded that smart meters alone "are neither necessary nor sufficient for providing households with the feedback that they need to achieve energy savings.”

Sebastian Coppola
Energy industry expert who testified in November before the MPSC on behalf of the Michigan attorney general's office

- He told the commission that his analysis shows that AMI [smart meters] "lacks the required justification to proceed further."

- And that there was not . . . sufficient information from the pilot program to validate that the new smart meters will drive sufficient change in consumption behavior or will provide sufficient value to customers,"

- "To continue and complete this project at this time will burden customers with higher rates for many years."

Robert Strong

Attorney at the Birmingham office of Clark Hill PLC who represents a group of large industrial energy users called the Association of Businesses Advocating Tariff Equity

- "We are saying that this is a foolish investment. The installation of the system does not provide a positive net benefit to the customers."

- Mr. Strong indicated that though benefits are elusive, customers will pay for the meters through higher rates. He also asserts that . . . enthusiasm for AMI has less to do with the energy-saving value of the system to customers and more to do with the utility's concern with earning a competitive rate of return on its invested equity.

There has been an important recent development that underscores the dubious nature of the smart meter business case. As reported in virtually all the metro-Detroit media and summarized at MichiganStopSmartMeters.com:

On April 10th, 2012 the Michigan Court of Appeals rebuked the Michigan Public Service Commission (MPSC) for a decision made in 2010. The case was brought by the Michigan Attorney General and Association of Businesses Advocating Tariff Equity (ABATE). **The case questioned whether the Michigan Public Service Commission (MPSC) acted properly when it approved, in 2010, the request of Detroit Edison that it be allowed to recapture the costs of installing 500,000 smart meters by means of a $37 million rate hike to its customers.**

The Court found that the Attorney General and ABATE had established *that **"PSC's decision to approve the $37 million rate increase to fund the program was unreasonable because it was not supported by competent, material and substantial evidence on the whole record."***

The remedy the Court ordered is that MPSC must *now **"conduct a full hearing on the AMI program, during which it shall consider, among other relevant matters, evidence related to the benefits, usefulness, and potential burdens of the AMI, specific information gleaned from pilot phases of the program regarding costs, operations, and customer response and impact, an assessment of similar programs initiated here or in other states, risks associated with AMI, and projected effects on rates."***

Given the evidence presented above from VaasaETT, Marco Bogaers, (CEO of Metropolis, Australia's largest operator of smart meters), Dr. Martin Kushler, Sebastian Coppola, Connecticut Attorney General George Jepsen, Attorney Robert Strong, and now the Michigan Court of Appeals, it is clear that the business case for smart meters is under assault. Lacking benefits for consumers while concurrently raising rates and requiring expensive investments, the viability of the smart meter program is being seriously questioned.

A claimed benefit of the smart meter AMI program is that customers will have access to near real-time usage data. Presumably, equipped with this information consumers will optimize their at-home behaviors so as to minimize their utility expenses.

Dr. Kushler questions whether a small business or residential customer would take time to analyze energy use, and whether that customer really would be able to make meaningful changes to justify the cost of a smart meter and monthly data fees.

- "To a large extent, very small commercial customers are in the same boat as residential customers, in that they don't pay attention to this kind of thing. Everyone is very busy, even overwhelmed with information. . . many people just won't pay attention to it."

- "When small businesses recognize that they are consuming higher-priced electricity during peak hours, there may not be much they can do. The same is true for residential customers."

Computer information specialists know how hard it is to get people and organizations to use data and information effectively. Additionally, much of the U.S. population is numerically illiterate. So, smart meter data availability appears to be an attempt to spin an unproven and unlikely benefit.

Given the industry's track record, it is unlikely the DTE program will be cost effective. In fact it appears smart meter programs can only exist through subsidization - a $3.2 Billion grant from the U.S. Dept. of Energy. Future earnings shortfalls will become justification for rate hikes. This in spite of the consensus that monthly electricity bills go up as soon as the smart meter is installed. This consensus is observed throughout the U.S. When discussed at a local forum, State Senator Vincent Gregory stated that he noticed the increase after his meter had been switched.

Here is an example, from Texas, as to the all-too-often rate hikes consumers have been experiencing.
http://www.wfaa.com/news/local/Oncor-faces-class-action-lawsuit-over-smart-meters-89308467.html

One efficiency claim made by DTE is that smart meters allows for the elimination of meter readers. Though when asked about the labor cutback, DTE reps actually said that meter readers would not be let-go but rather redeployed doing other smart meter functions. So no net labor savings. But here is the irony. Customers have the ability to report their own meter readings at the DTE website (or even over the telephone). The reported numbers are automatically checked against estimated numbers (as would be used to generate an estimated bill). **There is no need to assess consumers a monthly surcharge (penalty) if they read their own meter.** Perhaps a yearly or six month meter audit could be performed for a modest fee – but not every month. Other methods can also be used to insure customer payment (credit card on file, refundable deposit, etc.)

So here is a challenge for the MPSC. Based on real-word evidence there is a reasonable belief that the DTE smart meter program will not deliver what is promised; and that what is delivered will be more costly than forecasted. What performance metrics are, or will be, in place to monitor the deployment and ongoing operation of the new technology? And what will be the consequences of failed promises? Will DTE be required to reinstall all the old analog meters?

Given the dollar cost and potential biological hazard and privacy invasion that DTE seems willing to foster on the public, much more than a modest gain in performance and cost savings to the public should be expected – really demanded. If things only work about as well as before, or if some things are better, but others are worse, then what would be the justification for this drastic, and expensive, change?

Smart meters enable tiered, time of day, **peak rate pricing**. Many believe this to be a primary goal of the electric utilities that will allow them to garner increased profits. This is particularly egregious since it effectively establishes **pricing discrimination** against the elderly, sick, retired, shift-workers, and unemployed who are at home during peak load usage hours.

HEALTH AND SAFETY

"Were these population-wide exposures to smart meters to be part of a project carried out in a medical setting, to test the risks and benefits of a new technology on human health and well being, it would be rejected by a Medical Institutional Review Board … as an unethical exercise in human experimentation."

-- Elihu D. Richter MD, MPH
http://sagereports.com/smart-meter-rf/docs/letters/Eli_Richter_CCST_-final.pdf

As mentioned in the Introduction, the content of this Health and Safety section will be condensed (at least a bit; it could be a book!) since others are expected to submit a large volume of medical research information detailing the hazards of RF/EMF. However, it is important to understand core differences in philosophy and approach that explain much of the back-and-forth arguing that takes place between smart meter proponents and those who object to the technology. That difference can be described as **"Prove It Safe" vs. "Prove It Harmful."**

Medical and public health authorities embrace the "Prove It Safe" approach. And when in doubt they invoke the Precautionary Principle - if it might be harmful, go slow.

On the other hand, the engineering mindset leans toward "Prove It Harmful." Engineers (and engineering firms such as utility companies) who want to deploy new technology will only stop if people, rather immediately, display harmful effects. Of course the problem here is that standard ignores long-term consequences that only show up many years later. And when money can be made, "business interests" find it easy to look the other way and ignore long-term concerns or trends.

The other core rift has to do with **what is meant by "safe."** Engineers refrain from saying a device is safe. When that word is used it is by business or PR people, often inadvertently. All engineers will do is test to see whether a device meets a standard. **There is a subtle but significant distinction between "passes or meets the standard" and "safe."** It's easy to understand how a non-technical person would assume that if a device passed then it is safe. But safe assumes the standard is rigorous and correct.

The reality is that the RF exposure standard, which comes from the FCC, is about 25 years old and even precedes the cell phone era and does not comprehend cumulative

exposure. No one knows what the current average, daily exposure of RF is in our environment. Knowing that measurement would establish the **baseline** against which we could gauge RF growth. This is key because we have been rapidly increasing our exposure over the last decade. One might consider the Precautionary Principle here especially in light of ever emerging biological and medical research indicating that RF radiation does, in fact, pose a health hazard.

We've made mistakes before. Recall asbestos, lead in paint and gasoline, the drug Thalidomide (birth defects); even tanning booths, and cell phones for which cautions are now being urged (i.e., use an ear-bud or speakerphone, limit call length especially for children, etc.).

And let's not forget cigarettes, which the tobacco industry asserted for decades were safe and produced research attesting so. Later we found out that research was industry sponsored. Independent, objective research showed that tobacco was very bad for one's health – and that it created a burdensome cost to society.

There is a large body of research literature detailing the biological effects of RF/EMF. Though research in this area goes back decades, greater attention is now being paid due to the population's rapidly increasing RF exposure to wireless (e.g., broadcast radio and TV, commercial communications equipment, consumer cell phones and towers, Wi-Fi in offices, coffee shops, campuses, home, baby monitors, etc**). Current research documents non-thermal and non-ionizing biological effects– contrary to the standard industry rhetoric that only thermal sources can produce biological effects.**

Cell phone research presents us an interesting example akin to the tobacco industry. For years, industry sponsored research stated there was no problem. One way the industry hides discomforting evidence is by diluting the data. But when the data is filtered and only users who had a history of 10 years or longer of heavy cell phone use are analyzed, it was shown that they had a significantly greater chance of developing brain tumors. (The Hardell study.)
http://www.sott.net/articles/show/220517-Cell-Phone-Brain-Tumor-Risk-Underestimated-in-Cell-Phone-Study
Also, the Ten-Year INTERPHONE Study:
http://bioinitiative.org/freeaccess/press_release/docs/Interphone.pdf

Smart meters are in the family of wireless devices that include cell phones. The Hardell study, like others, demonstrates the difficulty in determining the truth. In part, this is due to the long latency of symptom manifestation and the paucity of data available to medical and public health researchers. But it is also due to attempts to downplay, even hide, uncomfortable truths that threaten what has come to be a major industry. Smart meter researchers confront the same barriers as with cell phones.

Conflicting Information

There is considerable conflicting information bandied about. For example, proponents of smart meters often state that the meters emit far lower levels of RF than a cell phone and this statistic is often used to declare smart meters are safe. However, INDEPENDENT experts state smart meters emit more than 100 times the radiation of a cell phone when full body exposure is taken into consideration. This is very different that what industry sources say.

Here is a short interview with Daniel Hirsch from the University of California at Santa Cruz who says the safety data is misconstrued and that smart meters emit 100 times the radiation as a cell phone when full body exposure is considered.
http://stopsmartmeters.org/2011/04/20/daniel-hirsch-on-ccsts-fuzzy-math/

And here's a short video interview with Dr. David Carpenter (background: Harvard Medical School, New York Public Health Department, Dean of Public Health). He also cites the dangers of smart meters.
http://emfsafetynetwork.org/?p=3946

There also seems to be general disagreement about how often and at what signal strength smart meters operate. DTE says they send usage data for about a total of 100 seconds per day. But they are careful with their language. Others state that these meters broadcast far more often, in part, because with the MESH network topology these meters are communicating with neighboring meters many times per second constantly throughout each and every day.

Here is an example of RF radiation readings near smart meters showing very high and frequent bursts – far greater than stated by the utility company:
http://emfsafetynetwork.org/?p=3870

Here is a short article about the many ways smart meters are in violation of safety regulations. Take note of the graphic image at the top of the page. Meter clusters like the one depicted are commonplace at apartment buildings and condo complexes. I wouldn't want my baby sleeping next to that!
http://emfsafetynetwork.org/?page_id=3653

There is also considerable contention regarding the signal strength. There is concern that reported measurement by smart meter proponents are based on averaging which smoothes out the spikes that others believe are a hazard.

The action required to reconcile these conflicts is clear: random sample field measurements of smart meters' signal strength and frequency of broadcast need to be made by objective, independent authorities. The raw data needs to be available to the public unaltered by smoothing or any other statistical manipulation. Independent research means no industry sponsorship or involvement of the testing agency. EPRI does not qualify.

Random sampled field measurements also need to be made to establish the baseline of current exposure to RF/EMF by the population. No organization has this data; not the government nor the utility companies. Consequences become more serious with cumulative exposure to RF/EMF. And there has been a tremendous increase in RF exposure over the past decade due to ubiquitous wireless devices including cell phones.

Is a smart meter a passive device that rarely broadcasts and when it does, the signal strength is low? Or is it an active device, chattering all day long and emitting strong, spikes of electrical energy? These objective field measurements are necessary to settle this matter. But the matter will not be settled unless the measurement process is beyond reproach.

EPRI vs. Sage Associates Environmental Consultants

These studies are worthy of mention because of their significance and specific focus on smart meters. Industry proponents of smart meters often cite the EPRI (Electric Power Research Institute) study but they usually fail to state that EPRI is more than 90% funded by industry companies. Though a reputable firm, one cannot overlook the influence of the funding in shaping the parameters and boundaries of the research. In fact, the EPRI study had very narrow and limited goals.

The EPRI report is touted as proving smart meters safe. EPRI is an engineering firm and subject to the "Prove It Harmful" mindset. Of greater relevance is that EPRI certified only one particular meter (Itron). That means EPRI tested it and found that it met the FCC standards. As discussed earlier, that means that the Itron meter can be deployed since it has met the **legal** requirement – but EPRI says nothing, nor is equipped to say anything, about the true safety of the device.

The Sage reports, on the other hand, demonstrated that in "real world" testing, smart meters did not even meet the FCC requirement (that many researchers consider far too lenient). "FCC compliance violations are likely to occur under normal conditions of installation and operation of smart meters." .And reflective surfaces as are commonly found in modern kitchens create considerable signal "bounce" and significantly increase exposure to RF. Moreover, Sage found that smart meters from other manufacturers far exceeded the Itron in RF emissions – by nearly a factor of five. (This is similar to cell phones that vary significantly in emissions by manufacturer.)

It is disingenuous on the part of the utilities to cite the EPRI study and ignore the Sage reports. But they do this regularly. Without equivocation it can be said that the Sage reports are far more rigorous and scientifically valid than the study from EPRI.

The third link below contains Sage's comments regarding EPRI's reaction to the Sage report. Initially EPRI defended itself and took issue with the Sage findings. However, Sage's reply shatters the EPRI work and exposes it as the inadequate research that it is.
Reference links:
http://sagereports.com/smart-meter-rf/
http://sagereports.com/smart-meter-rf/?page_id=429
http://sagereports.com/smart-meter-rf/?page_id=460

More Research Evidence

There are so many biological studies whose results provide a real basis for concern. Similarly, there are many public health and medical professionals, familiar with the body of research literature, who have expressed themselves publicly in the attempt to warn the global community about the potential hazards of long-term, continuous exposure to RF/EMF.

And let's not forget that about 3% of the population is hypersensitive to RF/EMF. For these people life is made difficult and uncomfortable in as much as it may be nearly impossible to eliminate RF from their environment. Of course, placing 3-4 smart meters on their home only compounds their dilemma. DTE has been insensitive to their circumstances.

Here will be listed only a sampling of additional research references. The question is **how much evidence is required to invoke the Precautionary Principle?** If policy makers dismiss these credible sources then no amount of evidence will be convincing. Like with tobacco, the adverse health consequences are well down the road.

Benvenito (Italy) Resolution (2006) and the Venice Resolution (2008)
These Resolutions are signed by scientists, engineers and medical doctors who have been doing EMF research and working internationally on electromagnetic fields health and safety. The combination of their training, experience and the many contributions they have made in conducting and publishing, represents hundreds of years of expertise and places them at the forefront of knowledge about EMF.
http://www.icems.eu/

BioInitiative Report
The report, by a preeminent panel of physicians and public health practitioners, documents adverse health effects from non-ionizing radiation (RF/EMF). This is a definitive piece of work.
http://bioinitiative.org/freeaccess/report/index.htm

The Board of the American Academy of Environmental Medicine
The Board opposes the installation of wireless "smart meters" in homes and schools based on a scientific assessment of the current medical literature.
http://aaemonline.org/images/CaliforniaPublicUtilitiesCommission.pdf

International Agency for Research on Cancer (IARC) / World Health Org.
In May, 2011, 30 scientists from 14 countries met in Lyon, France, to assess the carcinogenicity of radio frequency electromagnetic fields (RF-EMF).
"The Working Group classified RF/EMF as "possibly carcinogenic to humans" (Group 2B). This evaluation was supported by a large majority of Working Group members."
The Lancet, June 22, 2011 (The preeminent British medical journal)

Rob States, Professional Engineer (PE)
Mr. States has a definitive lecture that covers most of the important aspects regarding smart meters and RF/EMF. He has calibrated radiation exposure and presents it in a meaningful and startling manner. The lecture is about 30 minutes and the calibration section is somewhere near the middle.
http://www.youtube.com/watch?v=FLeCTaSG2-U&feature=related

Court-ordered study links Vatican Radio's RF to cancer risk. 7-14-10
http://www.rbr.com/radio/engineering/tech-topics/25895.html

A few quotes:

William Rea, MD
Founder & Director of the Environmental Health Center, Dallas

"Sensitivity to electromagnetic radiation is the emerging health problem of the 21st century. It is imperative health practitioners, governments, schools and parents learn more about it. The human health stakes are significant".

Martin Blank, Ph.D.
Associate Professor, Department of Physiology and Cellular Biophysics, Columbia University, College of Physicians and Surgeons
"Cells in the body react to EMFs as potentially harmful, just like to other environmental toxins, including heavy metals and toxic chemicals. The DNA in living cells recognizes electromagnetic fields at very low levels of exposure; and produces a biochemical stress response. The scientific evidence tells us that our safety standards are inadequate. . . we should sit up and pay attention."

Magda Havas, Ph.D.
Associate Professor, Environment & Resource Studies, Trent University, Canada.
"Radio frequency radiation and other forms of electromagnetic pollution are harmful at orders of magnitude well below existing guidelines. Science is one of the tools society uses to decide health policy [but] … the science is being ignored. Current guidelines urgently need to be re-examined … and reduced … There is an emerging public health crisis at hand and time is of the essence."

DATA PRIVACY AND NETWORK SECURITY

And there are other issues besides health. Computer / Cyber security will become very important. Changing the electrical meter to a wireless smart meter means that the traditional electrical delivery system becomes a computer system. The system will now be in the sights of computer hackers who can break their way into the meters, plant worms and viruses, determine when you are home based on your electricity usage pattern, alter billing records, and possibly commit identity theft. Of course, the utility companies will tell you that can't happen. Really?! Hackers have broken into the Pentagon, the major credit card companies and banks, and have taken down the power in Brazil. We see and hear these reports in the media on a regular basis.

As stated in the paper's opening section, smart meters will collect personal usage data in apparent violation of our rights guaranteed by the Fourth Amendment of the Constitution - to be secure in our persons, houses, papers, and effects. Ultimately this data will be worth big dollars to advertisers, appliance manufacturers, and insurance companies who will use life style data from the meters in claim and rate determination – or denial. They will likely also use the life-style data to determine medical and insurance coverage rates. That's what data is for! It just hasn't been available in the past.

Google has made a fortune by selling personal Internet surfing data. As detailed in the Wall Street Journal, among other business publications, major credit card companies are similarly positioning to sell consumer profiles based on their purchase behavior data. We now live in a world of GPS tracking from cell phones and cars, geo-coded pictures from our cameras, every electronic purchased tracked, and social media revealing more personal information than we ever before could imagine. Our awareness and legal system have not yet caught up.

Smart meter data will be the new ingredient in the mix. The allure of this treasure trove of riches will wear down any resistance to market this data by profit-seeking executives.

And regarding the network infrastructure, Richard Clark, previously our government's anti-terrorist czar and cyber-security adviser to President Bush tells us, **"Utility companies and energy distributors [should be made to] pass an audit for their current state of security. Auditing firms that have examined utility companies and energy distributors … found that — in every case — they were able to infiltrate the company's production … system."**
http://www.wired.com/threatlevel/2009/10/smartgrid/

Not very comforting. Utility companies shouldn't make promises they cannot keep.

And what happens to the gains in operational efficiency when the utility companies find that they will later have to create and fund high-price cyber security units to handle all the new computer security issues?!

CONCLUSIONS

The arguments have been presented. A failed business case; mounting medical and public health studies urging caution regarding further exposure to RF/EMF; experts in those fields raising a red flag; the threat of future violations of our Fourth Amendment rights to be secure in our persons, houses, papers, and effects; even a threat to our national security through the smart grid. One can only speculate on why the smart meter program has progressed this far. What does it take to stop this juggernaut?

As of this writing, nineteen communities have taken action by issuing resolutions expressing concern over smart meters. Perhaps more importantly these actions reflect a growing awareness on the part of the public – and awareness leads to questions. In time the public will become informed and hold their political leaders accountable for decisions made.

Actions that demand immediate attention were described. These include the need for objective field measurements of smart meters as outlined in this paper. But those measurements need to be made with the same rigor as was done in the Sage reports, not the EPRI research. It is shocking that to date, no one knows the current average RF/EMF exposure level to which our population is exposed. We need to remedy this condition.

This is America. People believe in the right to privacy and the freedom of choice. But DTE and other utilities seem to think otherwise. And they seem very comfortable ignoring evidence that is not consistent with their business interests.

The Michigan Public Service Commission (MPSC) needs to maintain an adversarial relationship with the utilities and defend the public's interests. The MPSC had been asked by a number of communities to immediately halt the deployment of smart meters. The MPSC did not comply with that request. But they did issue a call for study. This paper is input to that process. It is hoped that it, along with the many other submissions, will truly receive studied consideration by appropriate professionals.

The recommendations of this paper include the immediate cessation of any further smart meter deployment. Customers with a smart meter should be able to have their old analog meter reinstalled upon request.

Short of that, consumers should have the ability to **opt-out without penalty.** Opting-in would be a better strategy going forward. The best remedy would be to scrape the entire smart meter program completely. There certainly are sufficient reasons to do so. At least the program should be completely suspended until a body of valid scientific research is established. And there simply may be no remedy for a failed business model. The money would be better spent improving the current infrastructure.

For more information and ongoing updates, see:
www.MichiganStopSmartMeters.com

Author contact information:
Richard Meltzer
20850 Wink
Southfield, MI 48076
(248) 356-4835 home / office
(248) 320-4115 mobile
richard_meltzer@hotmail.com