#38
1-11-11

From: S. Jack Lewtschuk [blacklion@royal.net]
Sent: Tuesday, January 11, 2011 9:55 AM
To: 112-Clerk of the Board Everyone
Subject: New meters

PG&E arrived at my home to install the new meters unannounced. Apparently they could not get to the wall due to vegetation.

Instead of knocking at my door (I was at home all day) and tell me that they are just outside and have a problem, they left.

A few days later, I received a call from PG&E.

I think that courtesy would dictate that a homeowner needs to be notified when any work is to be done on his/her property.

Also, I am not yet persuaded that these meters are safe and/or accurate.

S. Jack Lewtschuk

blacklion@royal.net

#38

1-11-11

Boyd, Arlene P. 759-6642

From: Chappell, Lori A. on behalf of 100-District 4 (831) 883-7570
Sent: Tuesday, January 11, 2011 1:30 PM
To: 112-Clerk of the Board Everyone
Subject: FW: Smart Meter report, #38 consent agenda
Follow Up Flag: Follow up
Flag Status: Green
Attachments: Marin Ordinance 3552.pdf; CPUC -- m EMFSN rehearing app..pdf; Cindy Sage declaration - Jan 4, 2011.doc; Cindy Sage -- Smart Meter Report Jan, 2011.doc; Structure Group-Bakersfield article 4-10.doc; Structure Group Report excerpt wo PG.doc

Sincerely,
Lori

.....Happy New Years.....

Lori Chappell
Office Manager I Supervisor Jane Parker
County of Monterey I Fourth District- Main Coastal Office
2616 1st Avenue, Marina CA 93933 I (831) 883-7571 phone
chappellla@co.monterey.ca.us I www.janeparker.org
be green. think before you print.

-----Original Message-----
From: nbeety@netzero.net [mailto:nbeety@netzero.net]
Sent: Monday, January 10, 2011 9:11 PM
To: 100-District 1 (831) 647-7991; 100-District 2 (831) 755-5022; 100-District 3 (831) 385-8333; 100-District 4 (831) 883-7570; 100-District 5 (831) 647-7755
Cc: nbeety@netzero.net
Subject: Smart Meter report, #38 consent agenda

January 10, 2011

Re: Consent Agenda Item #38: Health Department Report on PG&E Smart Meters

To the Monterey County Board of Supervisors:

Last Tuesday, Marin County Board of Supervisors passed an urgency ordinance halting the installation of Smart Meters and infrastructure in the county. The ordinance is attached.

Tomorrow, the Santa Cruz Board of Supervisors will vote on an urgency ordinance, introduced by two supervisors, which renews and strengthens the moratorium on Smart Meters and infrastructure they had in place until Dec. 31. Also tomorrow, Lake County Board of Supervisors will be discussing a request for a moratorium on Smart Meters. San Luis Obispo County will be taking up this issue at a future meeting; a supervisor at the last meeting stated that his PG&E bill doubled after a Smart Meter was installed.

I request that you reject the Health Department report on Smart Meters.

Since June, I have presented the Monterey County Board of Supervisors and the Health Department with substantial and ongoing information and documentation concerning the many problems with Smart Meters, including but not limited to the RF safety issues.

However, after an almost 5 month official investigation, the conclusion of the Health Department appears to bypass all this information in favor of information from PG&E.

I think there is some confusion. PG&E is a for-profit commercial entity. It is not a public agency in any way. It sells products – electricity and natural gas – to the public.

In addition, PG&E is a company with a very checkered history on safety, honesty, and admission of responsibility.

As I stated in a previous letter, the Division of Ratepayer Advocates called PG&E information regarding safety evidence about RF emissions and the safety of Smart Meters "weak", "unreliable", "disputed", and "inadequate". The DRA said: "The Commission should. . . give serious consideration to investigating the health concerns raised by (EMF Safety) Network and other groups." I've attached the application for rehearing filed by EMF Safety Network.

Regarding the Monterey County Health Department report:
These meters are one million microwatt meters, with a range that can exceed two miles, and Silver Spring claims that their signal can go through mountains (yet PG&E claims they can't be felt inside a house). I have sent you and the Health Department charts showing just how potent tiny fractions of one microwatt can be.

Furthermore, PG&E has not disclosed the normal strength of the peak power pulses emitted by its Smart Meters. However, PG&E representatives have said, we all use the same meters, and Southern California Edison has disclosed that the normal strength of the peak pulse is 155,600 microwatts. Cell phones do not emit bursts of 155,600 microwatts, nor do they emit around the clock, 7 days a week. Furthermore, PG&E's figures are time-averaged, not actual numbers, and are for one meter in isolation, not in a mesh network relaying off each other or part of a bank of meters.

The FCC

- has exposure guidelines – voluntary; it does not have safety standards or limits,
- aggressively promotes the industry it is entrusted with regulating,
- has repeatedly been urged to revise guidelines because of their inadequacy, by agencies such as the EPA, public advocacy groups, and the public, and
- has guidelines that are far more lax than other countries; in some, these Smart Meters would be illegal, even on the basis of Richard Tell's time-averaged figures.

However, the brand new report by Cindy Sage, which is attached, shows that Smart Meters can even exceed FCC guidelines.

I have requested from the Health Department the list of scientists with whom they discussed Smart Meters and a list of literature reviewed to come to their conclusion. What I have received so far is a letter from Michael Herz, PG&E's EMF Program, with statements from the World Health Organization.

PG&E frequently cites the World Health Organization. I sent the Health Department evidence of World Health Organization conflicts-of-interest due to industry involvement in creating their recommendations. I would be happy to send you and them more information.
The World Health Organization

- was chastised by the medical journal Lancet for routinely neglecting evidence, and
- their EMF Task Force
    - was funded in part by telecommunications contributions; contributions by the utility companies, if any, and the total extent of industry contributions are unknown, because they won't open the books,
    - was chaired by an industry consultant, Michael Repacholi, and
    - his assistant was an employee of the industry's Electric Power Research Institute. Her name: Leeka Kheifets. There is an extensive history on her conflicts of interests working for EPRI, ICNIRP (another international advisory group), PG&E, and the CPUC (during which time she requested her financial records be sealed). She is also a professor at UCLA.
    - had consultations and assistance from industry in drafting and finalizing recommendations for the public.

I requested that County Health Department staff attend the Commonwealth Club forum in November on "Health Effects of Electromagnetic Fields" with international scientists presenting data. Did anyone from the county attend?

As regards the Structure Group report, there are serious questions about the Structure Group's independence and the accuracy of the report. Attached is an article from the Bakersfield Californian, as well as an excerpt from their report.

PG&E "information" meetings to "educate" and "assure concerned citizens" are sales pitches; they are not information from an independent public advocacy group. The information PG&E provides, either through their "information" meetings or in print, may be true or it may not be, and must be evaluated carefully. As with anything for sale, it is a case of "buyer beware."

Why are they so intent on rolling out the Smart Grid and Meters over vocal and growing opposition and the substantial problems?

It appears that PG&E and other utility companies will make a great deal of money on other uses for their Smart Meters and Smart Grid, including city-wide Wi-Fi. This is showing up in a myriad of newspaper accounts across the country. Last weekend in Las Vegas was a summit at the Consumer Electronics Show to discuss Smart Grid "opportunities." These meters will not just be firing with energy data. Electric and gas income will probably be incidental compared to the sums they will earn in leasing out the network, rendering all their statistics about transmit times a complete fiction.

This is a huge gamble, because the public might catch on. PG&E is working faster and faster to stay ahead of the growing uproar.

What did Watsonville, Fairfax, and Santa Cruz and Marin Counties do? They adopted ordinances halting these meters and their infrastructure.

Again, I request that you reject this report from the Health Department. And I further request that you agendize consideration of an urgency ordinance at the very earliest date possible that not only halts the installation of Smart Meters and their infrastructure, but also deactivates already installed Smart Meters and infrastructure.

Sincerely,

Nina Beety
277 Mar Vista Dr.
Monterey, CA 93940
nbeety@netzero.net

Attached:
Marin County Smart Meter ordinance
EMF Safety Network Application for Rehearing to the CPUC
Cindy Sage Declaration and Report (charts at http://sagereports.com/smart-meter-rf/)
Bakersfield Californian article on Structure Group
Structure Group Report excerpt

ORDINANCE NO. 3552
AN UNCODIFIED ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF MARIN ADOPTED AS AN URGENCY MEASURE IMPOSING A TEMPORARY MORATORIUM ON THE INSTALLATION OF SMARTMETERS AND RELATED EQUIPMENT IN, ALONG, ACROSS, UPON, UNDER AND OVER THE PUBLIC STREETS AND OTHER PLACES WITHIN THE UNINCORPORATED AREA OF MARIN COUNTY

THE BOARD OF SUPERVISORS OF THE COUNTY OF MARIN FIND AS FOLLOWS:

WHEREAS, the County of Marin (the "County"), through its police powers granted by Article XI of the California Constitution, retains broad discretion to legislate for public purposes and for the general welfare, including but not limited to matters of public health, safety and consumer protection; and

WHEREAS, the County of Marin has a franchise agreement with PG&E that has been in effect since the early 1950's; and

WHEREAS, in addition, the County retains authority under Article XII, Section 8 of the Constitution to grant franchises for public utilities, and pursuant to California Public Utilities Code section 6203, "may in such a franchise impose such other and additional terms and conditions..., whether governmental or contractual in character, as in the judgment of the legislative body are to the public interest;" and

WHEREAS, Public Utilities Code section 2902 reserves the County's right to supervise and regulate public utilities in matters affecting the health, convenience and safety of the general public, such as the use and repair of public streets by any public utility, the location of the poles, wires, mains, or conduits of any public utility, on, under, or above any public streets, and the speed of common - carriers operating within the limits of the municipal corporation;" and

WHEREAS, Pacific Gas & Electric Company ("PG&E") is now installing SmartMeters in Central and Northern California and is installing these meters within the County of Marin; and

WHEREAS, concerns about the impact and accuracy of SmartMeters have been raised nationwide, leading the Maryland Public Service Commission to deny permission on June 21, 2010 for the deployment of SmartMeters in that state. The State of Hawaii Public Utility Commission also recently declined to adopt a smart grid system in that state. The CPUC recently had before it a petition from the City and County of San Francisco, and other municipalities, seeking to delay the implementation of SmartMeters until the questions about their accuracy can be evaluated; and

WHEREAS, major problems and deficiencies with SmartMeters in California have been brought to the attention of the Board of Supervisors of the County of Marin, including PG&E's confirmation that SmartMeters have provided incorrect readings costing ratepayers untold thousands of dollars in overcharges and PG&E's records outlined "risks" and "issues" including an ongoing inability to recover real-time data because of faulty hardware originating with PG&E vendors; and

WHEREAS, the ebb and flow of gas and electricity into homes discloses detailed information about private details of daily life. Energy usage data, measured moment by moment, allows the reconstruction of a household's activities: when people wake up, when they

WHEREAS, this Board of Supervisors has sent letters to the President of the CPUC on July 20, 2010 and again on October 26, 2010 asking that the CPUC suspend PG&E's authority to deploy SmartMeters or related equipment in Marin County until certain reports now in process have been completed and reviewed and considered, and certain other conditions have been met; and

WHEREAS, there has been no response to either of these letters; and

WHEREAS, because the potential risks to the health, safety and welfare of County residents are so great, the Board of Supervisors wishes to adopt a moratorium on the installation of SmartMeters and related equipment within the unincorporated area of the County of Marin. The moratorium period will allow the Council on Science and Technology and legislative process referenced above to be completed and for additional information to be collected and analyzed regarding potential problems with SmartMeters; and

WHEREAS, there is a current and immediate threat to public health, safety and welfare because, without this urgency ordinance, SmartMeters or supporting equipment will be installed or constructed or modified in the County without PG&E's complying with the CPUC process for consultation with the local jurisdiction, the County's Code requirements, and subjecting residents of Marin County to the privacy, security, health, accuracy and consumer fraud risks of the unproven SmartMeter technology; and

WHEREAS, the Board of Supervisors hereby finds that it can be seen with certainty that there is no possibility that the adoption and implementation of this Ordinance may have a significant effect on the environment. This Ordinance does not authorize construction or installation of any facilities and, in fact, imposes greater restrictions on such construction and installation in order to protect the public health, safety and general welfare. This Ordinance is therefore exempt from the environmental review requirements of the California Environmental Quality Act (CEQA) pursuant to Section 15061(b)(3) of Title 14 of the California Code of Regulations; and

WHEREAS, there is no feasible alternative to satisfactorily study the potential impact identified above as well or better with a less burdensome or restrictive effect than the adoption of this interim urgency moratorium ordinance; and

WHEREAS, based on the foregoing it is in the best interest of public health, safety and welfare to allow adequate study of the impacts resulting from the SmartMeter technology; therefore it is appropriate to adopt a temporary moratorium that would remain in effect from the date of its adoption until December 31, 2011, unless your Board acts to repeal it prior to that date.

NOW, THEREFORE, BE IT ORDAINED by the Board of Supervisors of the County of Marin as follows:

SECTION I

Moratorium. From and after the effective date of this Ordinance, no SmartMeter may be installed in or on any home, apartment, condominium or business of any type within the unincorporated area of the County of Marin, and no equipment related to SmartMeters may be installed in, on, under, or above any public street or public right of way within the unincorporated area of the County of Marin.

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of EMF Safety Network for Modification of D.06-07-027 and D.09-03-026.	Application 10-04-018 (Filed April 6, 2010)

APPLICATION OF EMF SAFETY NETWORK FOR REHEARING OF DECISION 10-12-001

January 5, 2011

Sandra Maurer, Founder
EMF Safety Network
PO Box 1016
Sebastopol CA 95473
Tel. (707) 824-0824
sandi@emfsafetynetwork.org

TABLE OF AUTHORITIES

APPLICATION OF EMF SAFETY NETWORK FOR REHEARING OF DECISION 10-12-001

1. Introduction and Summary

On December 2, 2010, the Commission signed Decision (D.) 10-12-001, which dismissed the application of EMF Safety Network (Network) for modification of D.06-07-027 and D.09-03-026, in which the Commission approved installation of Smart Meters by Pacific Gas and Electric Company (PG&E). The Commission mailed D.10-12-001 to parties of record on December 6, 2010.

Pursuant to Rule 16.1 of the Commission's Rules of Practice and Procedure[1], Network submits this application for rehearing of D.10-12-001. The due date for applications for rehearing is January 5, 2011. Network will file this pleading electronically on the due date.

The Commission has an obligation to ensure safe delivery of gas and electric service and has committed legal error by neglecting and deferring its utility regulation duties to the Federal Communications Commission (FCC). This Commission, not the FCC, mandated Smart Meters in the California. The Commission previously investigated the heath impacts of radio frequency radiation (RF) emissions. In D.95-11-017, the Commission recognized public perception of harm, warned that financial interests should not trump health impacts, and ordered follow-up workshops on the subject. The basis for these outcomes was the possibility that a public health hazard could exist.

In 2006 the Commission upheld a mandate to carry out no and low cost electromagnetic field (EMF) reduction measures. However, the Commission failed to follow its own precautionary mandate by allowing PG&E and other utilities throughout California to deploy RF Smart Meters.

The Commission's decision to dismiss Network's application relies heavily on

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[1] Rule 16.1 provides that an application for rehearing shall be filed within 30 days after the date the Commission mails the order or decision.

Radiation Emissions from Smart Meters [1] to document radiofrequency radiation (RF) levels associated with wireless smart meters in various scenarios depicting common ways in which they are installed and operated.

5. The Report includes computer modeling of the range of possible smart meter RF levels that are occurring in the typical installation and operation of a single smart meter, and also multiple meters in California.

6. FCC compliance violations are likely to occur under normal conditions of installation and operation of smart meters and collector meters in California, because the public has access to smart meters installed on their homes.

7. In addition to exceeding FCC public safety limits under some conditions of installation and operation, smart meters can produce excessively elevated RF exposures, depending on where they are installed. RF levels are predicted to be substantially elevated within a few feet to within a few tens of feet from the meter(s).

9. RF levels associated with smart meters under some conditions of installation and operation will produce RF power density levels that exceed those reported in some scientific studies to result in adverse health impacts, including headache, sleep disruption, restlessness, tremor, cognitive impairment, tinnitus, increased cancer risk, and cardiac problems at distances less than 500 meters from cell antennas, or at levels over 0.1 microwatts per centimeter squared. [1.2.3.4.5.6]

10. Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

11. People who are afforded special protection under the federal Americans with Disabilities Act are not sufficiently acknowledged nor protected. People who have medical and/or metal implants or other conditions rendering them vulnerable to health risks at lower levels than FCC RF limits may be particularly at risk.

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[1] http://sagereports.com/smart-meter-rf/

2. Background

In D.10-12-001 the Commission granted the motion of PG&E to dismiss the application of the EMF Safety Network for modification of D.06-07-027 and D.09-03-026. The Decision Summary states that RF emissions from Smart Meters are 1/6000 of the Federal standard at 10 feet from a Smart Meter.[2] In its discussion the Commission deferred its responsibility to the FCC then concluded that it was not reasonable to reopen a review of Smart Meters based on alleged heath impacts.[3]

In the application, Network alleged that the RF from Smart Meters poses serious public health, safety and environmental impacts.[4] Network challenged PG&E's inconsistent and unreliable claims. Network stated it did not ask for regulation of RF by the Commission.[5] Network asked for an independently prepared RF Emissions Study; public hearings on RF health, environmental, and safety impacts; review of actual Smart Meter program performance; authorization for customers to opt out of Smart Meter installation; and an immediate moratorium on PG&E Smart Meters.[6] These requests and allegations of harm are backed by substantial peer-reviewed science, anecdotal evidence, and widespread community expressions of concern.

3. Standard of Review

Public Utilities Code Section 1757 provides that, when a court reviews the validity of a Commission decision, it considers, among other things, whether "the findings in the decision of the commission are not supported by substantial evidence in light of the whole record." Rule 16.1 of the Commission's Rules of Practice and Procedure directs applicants for rehearing to "set forth specifically the grounds on which the applicant considers the order or decision of the Commission to be unlawful or erroneous."

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[2] D.10-12-001, p. 1.

[3] D.10-12-001, pp. 9, 15.

[4] D.10-12-001, p. 14, Finding of Fact 1.

[5] D.10-12-001, p. 5.

[6] Application, p. 2.

4.2 The Commission Wrongly Defers to the FCC

The Commission commits legal error by deferring its responsibility for the deployment of Smart Meters to the FCC. The Decision defers to the FCC, stating, "The Commission generally does not delve into technical matters which fall within the expertise of another agency, in this case, the FCC."[11]

Commission President and Assigned Commissioner Michael Peevey clearly makes the case for deferral to the FCC in his statements regarding dismissal of Network's Application[12]. At the Commission's December 2 public meeting, Peevey stated, "I believe that relying on the FCC in this case is reasonable, prudent and fully consistent with our responsibilities to provide safe and reliable electric service to ratepayers. We're relying on the federal agency in this regard." Commissioner Peevey concluded his statements by telling the audience at the hearing, "You should take these concerns to the FCC, it's the proper body."

Although the Conclusions of Law in D.10-12-001[13] only mention reasonableness generally, Commissioner Peevey made it clear that deferring to the FCC was the primary reason for dismissal.

The Commission, not the FCC, mandated RF Smart Meters in California. It is the responsibility of the Commission to "serve the public interest by protecting consumers and ensuring the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy."[14]

The Division of Ratepayers Advocates (DRA) concurs with Network about Commission responsibility, stating, "The FCC's authority to regulate RF emissions does not deprive this Commission of its authority under state law to ensure that the in-state

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[11] D10-12-001, p. 9, Section 4.3

[12] CPUC meeting Archive video http://www.californiaadmin.com/cpuc.shtml

[13] D.10-12-001, p. 15.

[14] CPUC home page: http://www.cpuc.ca.gov/puc/

safety.[18] ... CACD [Commission Advisory and Compliance Division] shall hold informal cellular EMF and RF radiation workshops as additional health information becomes available and upon preparation of any updated EMF reports, and shall report the results of such workshops to the Commission through the resolution process.[19][20]

In D.95-11-017, Appendix A, Section C, Issues for Future Consideration, Issue #3, Public Perception of the Problem, states in part, "The economic considerations of this issue are significant. CACD raises the equally, if not more, important issue of health and safety of the public. Public Utilities Code Section 451 requires regulated utilities to furnish and maintain facilities as necessary to promote the health and safety of its patrons, employees and the public. Furthermore, Section 1002 requires the Commission, in granting any certificate, to consider the potential effects of the project on community values and on the environment. The Commission is clearly responsible for ensuring that the utilities it regulates are providing service and facilities that do not constitute a threat to the public or the environment. As mentioned earlier, the current research on the matter has left many questions unanswered and therefore difficult to conclude that a health and safety problem does or does not exist. Until clearer answers emerge, the Commission should consider the possibilities that a health hazard could exist and that careful monitoring as well as some interim measures would

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[18] PU Code Section 1002, "(a) The commission, as a basis for granting any certificate pursuant to Section 1001 shall give consideration to the following factors: (1) Community values.(2) Recreational and park areas.(3) Historical and aesthetic values. (4) Influence on environment, except that in the case of any line, plant, or system or extension thereof located in another state which will be subject to environmental impact review pursuant to the National Environmental Policy Act of 1969 (Chapter 55 (commencing with Section 4321) of Title 42 of the United States Code) or similar state laws in the other state, the commission shall not consider influence on the environment unless any emissions or discharges there from would have a significant influence on the environment of this state."

[19] D.95-11-017, Ordering Paragraph 2.

[20] D.95-11-017 is not directly available on the Commission's web site. See 1995 Cal. PUC LEXIS 842; 165 P.U.R.4th 403. The document can be found at the web address in footnote 16 herein.

Furthermore, the FCC Grants of Equipment Authorization, which govern the rules upon which FCC compliance is based, warn that RF exposure compliance depends on specific conditions. As stated in Network's reply comments to the proposed decision that preceded D.10-12-001, Network further alleges that RF Smart Meters in the manner deployed by PG&E violate one or more conditions for FCC compliance.[25] See also attached Declaration of Sandi Maurer. The CPUC must ensure the utilities adhere to the necessary FCC conditions, within those Grants of Authorization.

4.6 The Commission Decision to Mandate Smart Meters Violates State and Local Laws

The mandatory installation of radiation-emitting Smart Meters violates basic rights granted by the State of California, overburdens utility easements and violates local laws. The California Constitution, Article 1, Declaration of Rights, Section 1 states, "All people are by nature free and independent and have inalienable rights. Among these are enjoying and defending life and liberty, acquiring, possessing, and protecting property, and pursuing and obtaining safety, happiness, and privacy." Mandatory installation of Smart Meters infringes on people's rights to protect their property, life and liberty. The radiation emitted by Smart Meters is an environmental toxin which infringes on people's rights to obtain safety. Existing utility franchise agreements generally lack specific provisions regarding RF emissions. PG&E's installation of Smart Meters and associated infrastructure goes far beyond the intentions of utility easements incorporated into most if not all franchise agreements. Furthermore, standard homeowner's insurance policies explicitly exclude RF damage from coverage, putting ratepayers at risk for hazards not contemplated in utility franchise agreements. PG&E's RF system violates at least one local wireless ordinance. For example, a City of Sebastopol wireless facility ordinance[26] requires that minor antennas cannot be installed within 10 feet of power lines, cannot be installed on wood structures, and are limited to

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[25] "Reply Comments of EMF Safety Network on Proposed Decision of ALJ Sullivan," November 22, 2010, pp. 1-3.

[26] Chapter 17, General Provisions Relating to Telecommunications Facility and Minor Antenna, Sections 17.100.010 (A) through (C).

position that Smart Meters are mobile services facilities, then Network submits that the Commission's General Order 168,[29] which includes a Consumer Bill of Rights, should apply to Smart Meters. The Consumer Bill of Rights states, "The Commission declares that all consumers who interact with telecommunications providers must be afforded certain basic rights, and those rights shall be respected by the Commission-regulated providers with whom they do business." The Consumer Bill of Rights includes the following directives:

> *"Disclosure*: Consumers have a right to receive clear and complete information about rates, terms and conditions for available products and services, and to be charged only according to the rates, terms and conditions they have agreed to.
>
> *"Choice*: Consumers have a right to select their services and vendors, and to have those choices respected by the industry.
>
> "*Privacy*: Consumers have a right to personal privacy, to have protection from unauthorized use of their records and personal information, and to reject intrusive communications and technology.
>
> *"Public Participation and Enforcement:* Consumers have a right to participate in public policy proceedings, to be informed of their rights and what agencies enforce those rights, and to have effective recourse if their rights are violated.
>
> *"Accurate Bills and Redress*: Consumers have a right to accurate and understandable bills for products and services they authorize, and to fair, prompt and courteous redress for problems they encounter.
>
> *"Non-Discrimination*: Every consumer has the right to be treated equally to all other similarly-situated consumers, free of prejudice or disadvantage.
>
> *"Safety:* Consumers have a right to safety and security of their persons and property."

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[29] General Order 168, Rules Governing Telecommunications Consumer Protection.

5. Conclusion

The Commission should reopen its review of Smart Meters, and provide relief to Network and other jurisdictions by ordering an immediate moratorium on the deployment of RF Smart Meters. The Commission should convene public evidentiary hearings on health, safety and environmental impacts, in order to provide ratepayers and interested parties an opportunity to ensure that Commission policies are consistent with delivery of safe gas and electric service.

* * *

Rule 16.4(b) requires that allegations of new facts must be supported by a declaration or affidavit. Network has researched FCC regulations and has reviewed PG&E's compliance with FCC conditions. The Declaration of Sandra Maurer asserts that FCC Grants of Equipment Authorization, which govern the rules upon which FCC compliance is based, warn that RF exposure compliance depends on specific conditions, and that PG&E Smart Meters violate one or more conditions for FCC compliance. The Declaration of Cynthia Sage summarizes a report titled "Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters," which demonstrates that RF levels transmitted by publicly accessible PG&E Smart Meters can violate FCC guidelines under normal conditions of installation and operation.

Dated January 5, 2011, at Sebastopol, California.

/s/

Sandra Maurer, Founder
EMF Safety Network
PO Box 1016
Sebastopol CA 95473
Tel. (707) 824-0824
sandi@emfsafetynetwork.org

- antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter;
- end-users and installers must be provided with antenna installation and transmitter operating conditions to satisfy RF exposure compliance.

8. I doubt that several weeks of installer training qualifies PG&E installers as "professionals" and also doubts that Smart Meter installers are given accurate information about RF operating conditions.

9. Many PG&E Smart Meters are installed within 20 cm of public access. In some cases the meters are installed inside homes and businesses. In many situations Smart Meters are easily accessible to the public.

10. PG&E Smart Meters are widely co-located in banks of multiple meters. Co-location also occurs within Smart Meters because electric Smart Meters include at least two internal RF antennas. One antenna is used for the mesh network system and the other is for Home Area Network (HAN) systems. Antennas are designed to work in conjunction with HAN and RF appliances and with other Smart Meters in a mesh network.

11. Antennas have separate Grants of Equipment Authorization, which suggests that manufacturers have tested antennas in isolation and individually, and not in combination, which is how the Smart Meter and the Smart Grid system were designed to operate.

12. Network believes that "end users" are utility customers. PG&E has not provided end users with antenna installation and transmitter operating conditions to satisfy RF exposure compliance. FCC conditions that specify that end users are to have no manual instructions to remove or install the device confirm Network's belief that the end user is the customer.

13. Research into other Smart Meter Grants of Equipment Authorizations indicates there are similar violations in other utility districts in California.

Declaration of Cynthia Sage, Sage Associates

I, Cynthia Sage, declare as follows:

1. My name is Cynthia Sage. I am the owner of Sage Associates, an environmental consulting firm. My business address is 1396 Danielson Road, Montecito, California, 93108. I am providing this declaration in support of Application 10-04-018.

2. I have been a professional environmental consultant since 1972. I hold an M.A. degree in Geology, and a B.A. in Biology (Zoology) from the University of California, Santa Barbara. I am a Senior Fellow, Department of Oncology, School of Health and Medical Sciences, Örebro University, Örebro, Sweden (2008-2011).

3. I served as a member of the California Public Utilities Commission (CPUC) EMF Consensus Group (1990-1991), the Keystone Center Dialogue for Transmission Line Siting (a national group developing EMF Policy 1991-1992), and the International Electric Transmission Perception Project. Between 1977 and 1981, I served as a member of the California Board of Registration for Professional Engineers (Department of Consumer Affairs). I am a full member of the Bioelectromagnetics Society. I am the co-editor of the BioInitiative Report, and a founding member of the BioInitiative Working Group, an international scientific and public health research collaboration. I was a Lecturer in the Environmental Studies Program, University of California, Santa Barbara and a founding member of that program, and developed and taught classes in environmental impact assessment from 1972 – 1981.

4. My professional involvement in this area includes constraint analysis, environmental planning, and impact assessment on EMF and radiofrequency radiation siting issues for more than 30 years. My company has provided professional consulting services to city and county planners, private developers, state and federal agencies and schools with respect to measurement and assessment of EMF as a part of land planning and environmental constraints analysis since 1972. I have been an expert witness who testified on EMF computer modeling, impacts on people and property, EMF policy, public perception, visual impairment and land use issues, and have qualified both in state and in federal court proceedings as an expert witness in this area.

risks at lower levels than FCC RF limits may be particularly at risk.

12. Neither the FCC, the CPUC, the utility nor the consumer know what portion of the allowable public safety limit is already being used up or pre-empted by RF from other sources already present in the particular location a smart meter may be installed and operated.

13. Consumers, for whatever personal reason, choice or necessity who have already eliminated all possible wireless exposures from their property and lives, may now face excessively high RF exposures in their homes from smart meters on a 24-hour basis. This may force limitations on use of their otherwise occupied space, depending on how the meter is located, building materials in the structure, and how it is furnished.

14. In summary, no positive assertion of safety can be made by the FCC, nor relied upon by the CPUC, with respect to pulsed RF when exposures are chronic and occur in the general population. [3.5.6] Indiscriminate exposure to environmentally ubiquitous pulsed RF from the rollout of millions of new RF sources (smart meters) will mean far greater general population exposures, and potential health consequences. Uncertainties about the existing RF environment (how much RF exposure already exists), what kind of interior reflective environments exist (reflection factor), how interior space is utilized near walls), and other characteristics of residents (age, medical condition, medical implants, relative health, reliance on critical care equipment that may be subject to electronic interference, etc.) and unrestrained access to areas of property where meter is located all argue for caution.

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VERIFICATION

I, Sandra Maurer, represent EMF Safety Network and am authorized to make this verification on the organization's behalf. The statements in the foregoing document are true to the best of my knowledge, except for those matters that are stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Dated January 5, 2011, at Sebastopol, California.

/s/

Sandra Maurer, Founder
EMF Safety Network
PO Box 1016
Sebastopol CA 95473
Tel. (707) 824-0824
sandi@emfsafetynetwork.org

http://www.bakersfield.com/news/local/x2143248772/Utility-commission-rejects-criticism-of-meter-test-firm

Bakersfield Californian

Utility commission rejects criticism of meter test firm

BY JOHN COX, Californian staff writer
jcox@bakersfield.com | **Thursday, Apr 01 2010 08:34 PM**

Last Updated Thursday, Apr 01 2010 08:34 PM

The state Public Utilities Commission on Thursday dismissed criticism that it created the appearance of a conflict of interest when it awarded a SmartMeter investigation contract to a consulting firm with business ties to Pacific Gas and Electric Co.

Commission staff examined different aspects of PG&E's relationship with the Houston-based consulting firm, The Structure Group, and determined that they do not compromise the study's integrity, commission spokeswoman Terrie Prosper wrote in an e-mail.

"We are taking this evaluation very seriously and have the utmost confidence that Structure will examine the facts in an unbiased and analytical manner," she wrote.

Structure again refused to answer questions Thursday about its ties to PG&E.

PG&E has acknowledged hiring the firm to do work unrelated to SmartMeters for seven years ending in 2009. At least two senior workers at Structure previously worked for the utility's parent company, PG&E Corp.

State Sen. Majority Leader Dean Florez (D-Shafter) expressed disappointment Thursday that the commission did not come forward sooner with its findings about the firm's relationship with PG&E. But he stopped short of declaring a conflict of interest.

Florez also proposed a way to keep tabs on Structure's SmartMeter evaluation.

"At the moment I am considering assembling a team of experts who could possibly provide the legislature ... with a non-biased review of whatever Structure produces and how they operate," he wrote in an e-mail.

"But I hope that this seeming misstep with respect to transparency by the PUC and Structure isn't an example of what is to be produced. We are all losing patience."

According to Prosper's e-mail, when the commission is preparing to award a contract, it looks at "a range of relationships" between candidates for the job and the subjects they would be asked to study.

In this case, she wrote, staff determined that the company has no ongoing contracts with PG&E, and that the Structure principals who will work on this contract have not done work for PG&E in the past.

Prosper added that the two former PG&E Corp. workers worked for the company more than 10 years ago, and that neither was employed by the utility directly.

"I think it's perfectly justified to ask questions -- this is a very important issue," she wrote. "But I hope that any concern is alleviated by learning that we assessed potential conflicts of the company and the principals working on the evaluation."

Fifteen firms submitted bids to conduct the evaluation of PG&E's SmartMeter system, which uses remote electric meters some Kern customers blame for soaring power bills last summer. On Tuesday, more than four months after the commission approved an expedited selection process, Structure was announced the winner of a $1.4 million contract.

The contract calls for Structure to evaluate the meters' accuracy, look into customer complaints about high bills and compare PG&E's meter rollout to the industry's best practices. The inquiry is expected to take about four months.

Structure's website says the firm has worked with more than 120 utilities and energy companies on various projects in the United States and Europe.

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http://www.bakersfield.com/news/local/x2143248772/Utility-commission-rejects-criticism-of-meter-test-firm

Bakersfield Californian

Utility commission rejects criticism of meter test firm

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...

Declaration of Cynthia Sage, Sage Associates

January 4, 2011

My name is Cynthia Sage. I am the owner of Sage Associates, an environmental consulting firm. My business address is 1396 Danielson Road, Montecito, California, 93108. I am providing a declaration in support of A.10-04-018.

I have been a professional environmental consultant since 1972. I hold an M.A. degree in Geology, and a B.A. in Biology (Zoology) from the University of California, Santa Barbara. I am a Senior Fellow, Department of Oncology, School of Health and Medical Sciences, Orebro University, Orebro, Sweden (2008-2011).

I served as a member of the California Public Utilities Commission EMF Consensus Group (1990-1991), the Keystone Center Dialogue for Transmission Line Siting (a national group developing EMF Policy 1991-1992), and of the International Electric Transmission Perception Project. Between 1977 and 1981, I served as a member of the California Board of Registration for Professional Engineers (Department of Consumer Affairs). I am a full member of the Bioelectromagnetics Society. I am the co-editor of the BioInitiative Report, and a founding member of the BioInitiative Working Group, an international scientific and public health research collabortion. I was a Lecturer in the Environmental Studies Program, University of California, Santa Barbara and a founding member of that program, and developed and taught classes in environmental impact assessment from 1972 – 1981. My publications are attached.

My professional involvement in this area includes constraint analysis, environmental planning, and impact assessment on EMF and radiofrequency radiation siting issues for more than 30 years. My company has provided professional consulting services to city and county planners, private developers, state and federal agencies and schools with respect to measurement and assessment of EMF as a part of land planning and environmental constraints analysis since 1972. I have been an expert witness who testifies on EMF computer modeling, impacts on people and property, EMF policy, public perception, visual impairment and land use issues, and have qualified both in state and in federal court proceedings as an expert witness in this area.

1. Sage Associates has prepared the ***Assessment of Radiofrequency Microwave***

#38
1-11-11

From: Mohammadi, Jayne F. x7708 on behalf of 100-District 5 (831) 647-7755
Sent: Tuesday, January 11, 2011 8:56 AM
To: 112-Clerk of the Board Everyone
Subject: FW: (Not-So-Smart) PG&E METERS

Jayne Mohammadi
Aide to Supervisor Dave Potter
County of Monterey, Board of Supervisors
(831) 647-7755
(831) 647-7708

The miracle is this - the more we share, the more we have. *~Leonard Nimoy*

From: liz [mailto:nolancreates@yahoo.com]
Sent: Monday, January 10, 2011 10:43 PM
Subject: (Not-So-Smart) PG&E METERS

SUPERVISORS: please do not approve the continued installation of "Smart" Meters by PG&E as non-dangerous to human health. There is so much scientific evidence that contradicts the *completely superficial* report from Dr. Stallworth as to them being "safe."

His report doesn't even address the RF SMOG effect of *groups of smart meters* which together increase RF exposure far in excess of ONE meter's RF exposure! His report only cites the effect of one meter on one residence. *People are exposed to aggregate RF energy from all their neighbors meters---this is on top of things we can* **choose** *to use like Wi-Fi and Cell Phones.*

There is also ample evidence of these creating privacy invasion as the energy grid will next bring on SMART appliances so that anyone who can access public records legally or not can find out what we do inside our own homes related to what, when & how we consume energy.

And, accuracy of billing does not yet exist with use of Smart Meters.

I attended the Salinas PG&E information meeting and found the people unable to answer my questions as to the effect of RF emission from groups of neighborhood meters (mesh RF effect.) They parroted the same superficial points that industry has put forth to force this risky and unnecessary system on the public. The same PR prattle that Dr. Stallworth has bought into.

I am unable to attend tomorrow's meeting to voice this position in person.

Liz Nolan
112-3 Nissen Road
Salinas,CA 93901
831-754-5645

#38

1-11-11

From: marina meadows [marinameadows@comcast.net]
Sent: Monday, January 10, 2011 8:16 PM
To: 112-Clerk of the Board Everyone
Subject: Smart Meters and the Sage Report

Importance: High

Attachments: Smart_Meter_Report.docx

Smart_Meter_Repo
rt.docx (89 KB...

Dear Supervisors,

We are very unhappy with Dr. Hugh Stallworth's recommendation that you accept Smart Meters into Monterey County.

Please read and study the Sage Report we are attaching.

Many salient points are being missed; much disinformation is being disseminated by PG&E.

Too many issues are unaddressed.

Please take Item #38 off your agenda.

Please revisit this very grave concern of many Monterey County residents.

(We need a town hall meeting to discuss.)

Something big is missing here...and it is the TRUTH.

We do not want Smart Meters on our homes and businesses!

They are unsafe, dangerous, invasive, expensive and unhealthy!

Thank you for thinking seriously about this issue and not going along with the Agenda 21 program.

Sincere Regards,

The Cecils

SAGE
Associates
ENVIRONMENTAL CONSULTANTS

Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters

Sage Associates
Santa Barbara, CA
USA

January 1, 2011

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APPENDIX C – Sensitivity of the Eye and Testes to RF Radiation

SUMMARY OF FINDINGS

This Report has been prepared to document radiofrequency radiation (RF) levels associated with wireless smart meters in various scenarios depicting common ways in which they are installed and operated.

The Report includes computer modeling of the range of possible smart meter RF levels that are occurring in the typical installation and operation of a single smart meter, and also multiple meters in California. It includes analysis of both two-antenna smart meters (the typical installation) and of three-antenna meters (the collector meters that relay RF signals from another 500 to 5000 homes in the area).

RF levels from the various scenarios depicting normal installation and operation, and possible FCC violations have been determined based on both time-averaged and peak power limits (Tables 1 - 14).

Potential violations of current FCC public safety standards for smart meters and/or collector meters in the manner installed and operated in California are

predicted in this Report, based on computer modeling (Tables 10 – 17).

Tables 1 – 17 show power density data and possible conditions of violation of the FCC public safety limits, and Tables 18 – 33 show comparisons to health studies reporting adverse health impacts.

FCC compliance violations are likely to occur under normal conditions of installation and operation of smart meters and collector meters in California. Violations of FCC safety limits for uncontrolled public access are identified at distances within 6" of the meter. Exposure to the face is possible at this distance, in violation of the time-weighted average safety limits (Tables 10-11). FCC violations are predicted to occur at 60% reflection (OET Equation 10 and 100% reflection (OET Equation 6) factors*, both used in FCC OET 65 formulas for such calculations for time-weighted average limits. Peak power limits are not violated at the 6" distance (looking at the meter) but can be at 3" from the meter, if it is touched.

This report has also assessed the potential for FCC violations based on two examples of RF exposures in a typical residence. RF levels have been calculated at distances of 11" (to represent a nursery or bedroom with a crib or bed against a wall opposite one or more meters); and at 28" (to represent a kitchen work space with one or more meters installed on the kitchen wall).

FCC compliance violations are identified at 11" in a nursery or bedroom setting using Equation 10* of the FCC OET 65 regulations (Tables 12-13). These violations are predicted to occur where there are multiple smart meters, or one collector meter, or one collector meter mounted together with

several smart meters.

FCC compliance violations are not predicted at 28" in the kitchen work space for 60% or for 100% reflection calculations. Violations of FCC public safety limits are predicted for higher reflection factors of 1000% and 2000%, which are not a part of FCC OET 65 formulas, but are included here to allow for situations where site-specific conditions (highly reflective environments, for example, galley-type kitchens with many highly reflective stainless steel or other metallic surfaces) may be warranted.*

*FCC OET 65 Equation 10 assumes 60% reflection and Equation 6 assumes 100% reflection. RF levels are also calculated in this report to account for some situations where interior environments have highly reflective surfaces as might be found in a small kitchen with stainless steel or other metal counters, appliances and furnishings. This report includes the FCC's reflection factors of 60% and 100%, and also reflection factors of1000% and 2000% that are more in line with those reported in Hondou, 2001; Hondou, 2006 and Vermeeren et al, 2010. The use of a 1000% reflection factor is still conservative in comparison to Hondou, 2006. A 1000% reflection factor is 12% (or 121 times as high) a factor for power density compared to Hondou et al, 2006 prediction of 1000 times higher power densities due to reflection. A 2000% reflection factor is only 22% (or 441 times) that of Hondou's finding that power density can be as high as 2000 times higher.

In addition to exceeding FCC public safety limits under some conditions of installation and operation, smart meters can produce excessively elevated RF exposures, depending on where they are installed. With respect to absolute RF exposure levels predicted for occupied space within dwellings, or outside areas like patios, gardens and walk-ways, RF levels are predicted to be substantially elevated within a few feet to within a few tens of feet from the meter(s).

For example, one smart meter at 11" from occupied space produces somewhere between 1.4 and 140 microwatts per centimeter squared (uW/cm2) depending on the duty cycle modeled (Table 12). Since FCC

OET 65 specifies that continuous exposure be assumed where the public cannot be excluded (such as is applicable to one's home), this calculation produces an RF level of 140 uW/cm2 at 11" using the FCCs lowest reflection factor of 60%. Using the FCC's reflection factor of 100%, the figures rise to 2.2 uW/cm2 – 218 uW/cm2, where the continuous exposure calculation is 218 uW/cm2 (Table 12). These are very significantly elevated RF exposures in comparison to typical individual exposures in daily life. Multiple smart meters in the nursery/bedroom example at 11" are predicted to generate RF levels from about 5 to 481 uW/cm2 at the lowest (60%) reflection factor; and 7.5 to 751 uW/cm2 using the FCCs 100% reflection factor (Table 13). Such levels are far above typical public exposures.

RF levels at 28" in the kitchen work space are also predicted to be significantly elevated with one or more smart meters (or a collector meter alone or in combination with multiple smart meters). At 28" distance, RF levels are predicted in the kitchen example to be as high as 21 uW/cm2 from a single meter and as high as 54.5 uW/cm2 with multiple smart meters using the lower of the FCCs reflection factor of 60% (Table 14). Using the FCCs higher reflection factor of 100%, the RF levels are predicted to be as high as 33.8 uW/cm2 for a single meter and as high as 85.8 uW/cm2 for multiple smart meters (Table 14). For a single collector meter, the range is 60.9 to 95.2 uW/cm2 (at 60% and 100% reflection factors, respectively) (from Table 15).

Table 16 illustrates predicted violations of peak power limit (4000 uW/cm2) at 3" from the surface of a meter. FCC violations of peak power limit are predicted to occur for a single collector meter at both 60% and 100%

reflection factors. This situation might occur if someone touches a smart meter or stands directly in front.

Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

Neither the FCC, the CPUC, the utility nor the consumer know what portion of the allowable public safety limit is already being used up or pre-empted by RF from other sources already present in the particular location a smart meter may be installed and operated.

Consumers, for whatever personal reason, choice or necessity who have already eliminated all possible wireless exposures from their property and lives, may now face excessively high RF exposures in their homes from smart meters on a 24-hour basis. This may force limitations on use of their otherwise occupied space, depending on how the meter is located, building materials in the structure, and how it is furnished.

People who are afforded special protection under the federal Americans with Disabilities Act are not sufficiently acknowledged nor protected. People who have medical and/or metal implants or other conditions rendering them vulnerable to health risks at lower levels than FCC RF limits may be particularly at risk (Tables 30-31). This is also likely to hold true for other

subgroups, like children and people who are ill or taking medications, or are elderly, for they have different reactions to pulsed RF. Childrens' tissues absorb RF differently and can absorb more RF than adults (Christ et al, 2010; Wiart et al, 2008). The elderly and those on some medications respond more acutely to some RF exposures.

Safety standards for peak exposure limits to radiofrequency have not been developed to take into account the particular sensitivity of the eyes, testes and other ball shaped organs. There are no peak power limits defined for the eyes and testes, and it is not unreasonable to imagine situations where either of these organs comes into close contact with smart meters and/or collector meters, particularly where they are installed in multiples (on walls of multi-family dwellings that are accessible as common areas).

In summary, no positive assertion of safety can be made by the FCC, nor relied upon by the CPUC, with respect to pulsed RF when exposures are chronic and occur in the general population. Indiscriminate exposure to environmentally ubiquitous pulsed RF from the rollout of millions of new RF sources (smart meters) will mean far greater general population exposures, and potential health consequences. Uncertainties about the existing RF environment (how much RF exposure already exists), what kind of interior reflective environments exist (reflection factor), how interior space is utilized near walls), and other characteristics of residents (age, medical condition, medical implants, relative health, reliance on critical care equipment that may be subject to electronic interference, etc) and unrestrained access to areas of property where meter is located all argue for caution.

INTRODUCTION

How Smart Meters Work

This report is limited to a very simple overview of how smart meters work, and the other parts of the communication system that are required for them to transmit information on energy usage within a home or other building. The reader can find more detailed information on smart meter and smart grid technology from numerous sources available on the Internet.

Often called 'advanced metering infrastructure or AMI', smart meters are a part of an overall system that includes a) a mesh network or series of wireless antennas at the neighborhood level to collect and transmit wireless information from all the smart meters in that area back to a utility.

The mesh network (sometimes called a distributed antenna system) requires wireless antennas to be located throughout neighborhoods in close proximity to where smart meters will be placed. Often, a municipality will receive a hundred or more individual applications for new cellular antenna service, which is specifically to serve smart meter technology needs. The communication network needed to serve smart meters is typically separate from existing cellular and data transmission antennas (cell tower antennas). The mesh network (or DAS) antennas are often utility-pole mounted. This part of the system can spread hundreds of new wireless antennas throughout neighborhoods.

Smart meters are a new type electrical meter that will measure your energy usage, like the old ones do now. But, it will send the information back to the utility by wireless signal (radiofrequency/microwave radiation signal) instead of having a utility meter reader come to the property and manually do the monthly electric service reading. So, smart meters are replacements for the older 'spinning dial' or analog electric meters. Smart meters are not optional, and utilities are installing them even where occupants do not want them.

In order for smart meters to monitor and control energy usage via this wireless communication system, the consumer must be willing to install power transmitters inside the home. This is the third part of the system and involves placing power transmitters (radiofrequency/microwave radiation emitting devices) within the home on each appliance. A power transmitter is required to measure the energy use of individual appliances (e.g., washing machines, clothes dryers, dishwashers, etc) and it will send information via wireless radiofrequency signal back to the smart meter. Each power transmitter handles a separate appliance. A typical kitchen and laundry may have a dozen power transmitters in total. If power transmitters are not installed by the homeowner, or otherwise mandated on consumers via federal legislation requiring all new appliances to have power transmitters built into them, then there may be little or no energy reporting nor energy savings.

Smart meters could also be installed that would operate by wired, rather than wireless means. Shielded cable, such as is available for cable modem (wired internet connection) could connect smart meters to utilities. However, it is

not easy to see the solution to transmit signals from power transmitters (energy use for each appliance) back to the utility.

Collector meters are a special type of smart meter that can serve to collect the radiofrequency/microwave radiation signals from many surrounding buildings and send them back to the utility. Collector meters are intended to collect and re-transmit radiofrequency information for somewhere between 500-5000 homes or buildings. They have three operating antennas compared to two antennas in regular smart meters. Their radiofrequency microwave emissions are higher and they send wireless signal much more frequently. Collector meters can be place on a home or other building like smart meters, and there is presently no way to know which a homeowner or property owner might receive.

Mandate

The California Public Utilities Commission has authorized California's investor-owned utilities (including Pacific Gas & Electric, Southern California Edison Company and San Diego Gas & Electric) to install more than 10 million new wireless* smart meters in California, replacing existing electric meters as part of the federal SmartGrid program.

The goal is to provide a new residential energy management tool. It is intended to reduce energy consumption by providing computerized information to customers about what their energy usage is and how they might reduce it by running appliances during 'off-time' or 'lower load'

conditions. Presumably this will save utilities from having to build new facilities for peak load demand. Utilities will install a new smart meter on every building to which electrical service is provided now. In Southern California, that is about 5 million smart meters in three years for a cost of around $1.6 billion dollars. In northern California, Pacific Gas & Electric is slated to install millions of meters at a cost of more than $2.2 billion dollars. If consumers decide to join the program (so that appliances can report energy usage to the utility), they can be informed about using energy during off-use or low-use periods, but only if consumers also agree to install additional wireless power transmitters on appliances inside the home. Each power transmitter is an additional source of pulsed RF that produces high exposures at close range in occupied space within the home.

> *"Proponents of smart meters say that when these meters are teamed up with an in-home display that shows current energy usage, as well as a communicating thermostat and software that harvest and analyze that information, consumers can see how much consumption drives cost -- and will consume less as a result. Utilities are spending billions of dollars outfitting homes and businesses with the devices, which wirelessly send information about electricity use to utility billing departments and could help consumers control energy use."*
>
> Wall Street Journal, April 29, 2009.

The smart meter program is also a tool for load-shedding during heavy electrical use periods by turning utility meters off remotely, and for reducing the need for utility employees to read meter data in the field.

Purpose of this Report

This Report has been prepared to document radiofrequency radiation (RF) levels associated with wireless smart meters in various scenarios depicting common ways in which they are installed and operated.

The Report includes computer modeling of the range of possible smart meter RF levels that are occurring in the typical installation and operation of a single smart meter, and also multiple meters in California. It includes analysis of both two-antenna smart meters (the typical installation) and of three-antenna meters (the collector meters that relay RF signals from another 500 to 5000 homes in the area).

RF levels from the various scenarios depicting normal installation and operation, and possible FCC violations have been determined based on both time-averaged and peak power limits (Tables 1 - 14).

Potential violations of current FCC public safety standards for smart meters and/or collector meters in the manner installed and operated in California are illustrated in this Report, based on computer modeling (Tables 10 – 17).

Tables which present data, possible conditions of violation of the FCC public safety limits, and comparisons to health studies reporting adverse health impacts are summarized (Tables 18 – 33).

The next section describes methodology in detail, but generally this Report provides computer modeling results for RF power density levels for these scenarios, analysis of whether and under what conditions FCC public safety

limit violations may occur, and comparison of RF levels produced under these scenarios to studies reporting adverse health impacts with chronic exposure to low-intensity radiofrequency radiation at or below levels produced by smart meters and collector meters in the manner installed and operated in California.

1) Single 'typical' meter - tables showing RF power density at increasing distances in 0.25' (3") intervals outward for single meter (two-antenna meter). Effects of variable duty cycles (from 1% to 90%) and various reflection factors (60%, 100%, 1000% and 2000%) have been calculated.
2) Multiple 'typical' meters - tables showing RF power density at increasing distances as above.
3) Collector meter - tables showing RF power density related to a specialized collector meter which has three internal antennas (one for every 500 or 5000 homes) as above.
4) Collector meter - a single collector meter installed with multiple 'typical' two-antenna meters as above.
5) Tables are given to illustrate the distance to possible FCC violations for time-weighted average and peak power limits (in inches).
6) Tables are given to document RF power density levels at various key distances (11" to a crib in a bedroom; 28" to a kitchen work area; and 6" for a person attempting to read the digital readout of a smart meter, or inadvertently working around a meter.
7) Tables are given to compare RF power density levels with studies reporting adverse health symptoms and effects (and those levels of RF associated with such health effects).
8) Tables are given to compare smart meter and collector meter RF to BioInitiative Report recommended limit (in feet).

Framing Questions

In view of the rapid deployment of smart meters around the country, and the relative lack of public information on their radiofrequency (RF) emission

profiles and public exposures, there is a crucial need to provide independent technical information.

There is very little solid information on which decision-makers and the public can make informed decisions about whether they are an acceptable new RF exposure, in combination with pre-existing RF exposures.

On-going Assessment of Radiofrequency Radiation Health Risks

The US NIEHS National Toxicology Program nominated radiofrequency radiation for study as a carcinogen in 1999. Existing safety limits for pulsed RF were termed "not protective of public health" by the Radiofrequency Interagency Working Group (a federal interagency working group including the FDA, FCC, OSHA, the EPA and others). Recently, the NTP issued a statement indicating it will complete its review by 2014 (National Toxicology Program, 2009). The NTP radiofrequency radiation study results have been delayed for more than a decade since 1999 and very little laboratory or epidemiological work has been completed. Thus, he explosion of wireless technologies is producing radiofrequency radiation exposures over massive populations before questions are answered by federal studies about the carcinogenicity or toxicity of low-intensity RF such as are produced by smart meters and other SmartGrid applications of wireless. The World Health Organization and the International Agency for Research on Cancer have not completed their studies of RF (the IARC WHO RF Health Monograph is not expected until at least 2011). In the United States, the National Toxicology Program listed RF as a potential carcinogen for study, and has not released any study results or findings a decade later.

There are no current, relevant public safety standards for pulsed RF involving chronic exposure of the public, nor of sensitive populations, nor of people with metal and medical implants that can be affected both by localized heating and by electromagnetic interference (EMI) for medical wireless implanted devices.

Considering that millions of smart meters are slated to be installed on virtually every electrified building in America, the scope of the question is large and highly personal. Every family home in the country, and every school classroom – every building with an electric meter – is to have a new wireless meter – and thus subject to unpredictable levels of RF every day.

1) Have smart meters been tested and shown to comply with FCC public safety limits (limits for uncontrolled public access)?

2) Are these FCC public safety limits sufficiently protective of public health and safety? This question is posed in light of the last thirty years of international scientific investigation and public health assessments documenting the existence of bioeffects and adverse health effects at RF levels far below current FCC standards. The FCC's standards have not been updated since 1992, and did not anticipate nor protect against chronic exposures (as opposed to acute exposures) from low-intensity or non-thermal RF exposures, particularly pulsed RF exposures.

3) What demonstration is there that wireless smart meters will comply with existing FCC limits, as opposed to under strictly controlled

conditions within government testing laboratories?

4) Has the FCC been able to certify that compliance is achievable under real-life use conditions including, but not limited to:

- In the case where there are both gas and electric meters on the home located closely together.

- In the case where there is a "bank" of electric and gas meters, on a multi-family residential building such as on a condominium or apartment building wall. There are instances of up to 20 or more meters located in close proximity to occupied living space in the home,in the classroom or other occupied public space.

- In the case where there is a collector meter on a home that serves the home plus another 500 to 5000 other residential units in the area, vastly increasing the frequency of RF bursts.

- In the case where there is one smart meter on the home but it acts as a relay for other local neighborhood meters. What about 'piggybacking' of other neighbors' meters through yours? How can piggybacking be reasonably estimated and added onto the above estimates?

- What about the RF emissions from the power transmitters? Power transmitters installed on appliances (perhaps 10-15 of

them per home) and each one is a radiofrequency radiation transmitter.

- How can the FCC certify a system that has an unknown number of such transmitters per home, with no information on where they are placed?
- Where people with medical/metal implants are present? (Americans with Disabilities Act protects rights)

5) What assessment has been done to determine what pre-existing conditions of RF exposure are already present. On what basis can compliance for the family inside the residence be assured, when there is no verification of what other RF sources exist on private property? How is the problem of cumulative RF exposure properly assessed (wireless routers, wireless laptops, cell phones, PDAs, DECT or other active-base cordless phone systems, home security systems, baby monitors, contribution of AM, FM, television, nearby cell towers, etc).

6) What is the cumulative RF emissions worst-case profile? Is this estimate in compliance?

7) What study has been done for people with metal implants* who require protection under Americans with Disabilities Act? What is known about how metal implants can intensity RF, heat tissue and result in adverse effects below RF levels allowed for the general public. What is known about electromagnetic interference (EMI) from spurious RF sources in the environment (RFID scanners, cell

towers, security gates, wireless security systems, wireless communication devices and routers, wireless smart meters, etc)

*Note: There are more than 20 million people in the US who need special protection against such exposures that may endanger them. High peak power bursts of RF may disable electronics in some critical care and medical implants. We already have reports of wireless devices disabling deep brain stimulators in Parkinson's patients and there is published literature on malfunctions with critical care equipment.

PUBLIC SAFETY LIMITS FOR RADIOFREQUENCY RADIATION

The FCC adopted limits for Maximum Permissible Exposure (MPE) are generally based on recommended exposure guidelines published by the National Council on Radiation Protection and Measurements (NCRP) in "Biological Effects and Exposure Criteria for Radiofrequency Electromagnetic Fields," (NCRP, 1986).

In the United States, the Federal Communications Commission (FCC) enforces limits for both occupational exposures (in the workplace) and for public exposures. The allowable limits are variable, according to the frequency transmitted. Only public safety limits for uncontrolled public access are assessed in this report.

Maximum permissible exposures (MPE) to radiofrequency electromagnetic fields are usually expressed in terms of the plane wave equivalent power density expressed in units of milliwatts per square centimeter (mW/cm2) or alternatively, absorption of RF energy is a function of frequency (as well as

body size and other factors). The limits vary with frequency. Standards are more restrictive for frequencies at and below 300 MHz. Higher intensity RF exposures are allowed for frequencies between 300 MHz and 6000 MHz than for those below 300 MHz.

In the frequency range from 100 MHz to 1500 MHz, exposure limits for field strength and power density are also generally based on the MPE limits found in Section 4.1 of "*IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz*," ANSI/IEEE C95.1-1992 (IEEE, 1992, and approved for use as an American National Standard by the American National Standards Institute (ANSI).

US Federal Communications Commission (FCC) Exposure Standards

Table 1, Appendix A FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(A) Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time $[E]^2$ $[H]^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	(900/f_2)*	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6

B) FCC Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm2)	Averaging Time $[E]^2$ $[H]^2$ or S (minutes)

0.3-3.0	614	1.63	(100)*	30
3.0-30	824/f	2.19/f	$(180/f_2)$*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

NOTE 1: ***Occupational/controlled*** limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2: ***General population/uncontrolled*** exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure. Source: FCC Bulletin OET 65 Guidelines, page 67 OET, 1997.

In this report, the public safety limit for a smart meter is a combination of the individual antenna frequency limits and how much power output they create. A smart meter contains two antennas. One transmits at 915 MHz and the other at 2405 MHz. They can transmit at the same time, and so their effective radiated power is summed in the calculations of RF power density. Their combined limit is 655 uW/cm2. This limit is calculated by formulas from Table 1, Part B and is proportionate to the power output and specific safety limit (in MHz) of each antenna.

For the collector meter, with it's three internal antennas, the combined public safety limit for time-averaged exposure is 571 MHz (a more restrictive level since it includes an additional 824 MHz antenna that has a lower limit than either the 915 MHz or the 2405 MHz antennas). In a collector meter, only two of the three antennas can transmit simultaneously (the 915 MHz LAN and the GSM 850 MHz (from the FCC Certification Exhibit titled RF Exposure Report for FCC ID: SK9AMI-2A). The proportionate power output of each antenna plus the safety limit for each antenna frequency combines to give a safety limit for the collector meter of 571 uW/cm2. Where one collector meter is combined with multiple smart meters, the combined limit is weighted upward by the additional smart meters' contribution, and is 624 uW/cm2.

Continuous Exposure

FCC Bulletin OET 65 guidelines require the assumption of continuous

exposure in calculations. Duty cycles offered by the utilities are a fraction of continuous use, and significantly diminish predictions of RF exposure.

At present, there is no evidence to prove that smart meters are functionally unable to operate at higher duty cycles that some utilities have estimated (estimates vary from 1% to 12.5% duty cycle, and as high as 30%). Confirming this is the Electric Power Research Institute (EPRI) in its "Perspective on Radio-Frequency Exposure Associated with Residential Automatic Meter Reading Technology (EPRI, 2010) According to EPRI:

> *"The technology not only provides a highly efficient method for obtaining usage data from customers, but it also can provide up-to-the-minute information on consumption patterns since the meter reading devices can be programmed to provide data as often as needed."* Emphasis added

The FCC Bulletin OET 65 guidelines specify that continuous exposure (defined by the FCC OET 65 as 100% duty cycle) is required in calculations where it is not possible to control exposures to the general public.

> *"It is important to note that for general population/uncontrolled exposures it is often not possible to control exposures to the extent that averaging times can be applied. In those situations, it is often necessary to assume continuous exposure."* (emphasis added)
> FCC Bulletin OET 65, p, 10

> ***"Duty factor**. The ratio of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmissions. A duty factor of 1.0*

corresponds to continuous operation."
(emphasis added)

FCC Bulletin OET 65, p, 2

This provision then specifies duty cycles to be increased to 100%.

The FCC Guidelines (OET 65) further address cautions that should be observed for uncontrolled public access to areas that may cause exposure to high levels of RF.

Re-radiation

The foregoing also applies to high RF levels created in whole or in part by re-eradiation. A convenient rule to apply to all situations involving RF radiation is the following:

(1) Do not create high RF levels where people are or could reasonably be expected to be present, and (2) [p]revent people from entering areas in which high RF levels are necessarily present.

(2) Fencing and warning signs may be sufficient in many cases to protect the general public. Unusual circumstances, the presence of multiple sources of radiation, and operational needs will require more elaborate measures.

(3) Intermittent reductions in power, increased antenna heights, modified antenna radiation patterns, site changes, or some combination of these may be necessary, depending on the particular situation.

FCC OET 65, Appendix B, p. 79

Fencing, distancing, protective RF shielded clothing and signage warning occupants not to use portions of their homes or properties are not feasible nor desirable in public places the general public will spend time (schools, libraries, cafes, medical offices and clinics, etc) These mitigation strategies may be workable for RF workers, but are unsuited and intolerable for the public.

Reflections

A major, uncontrolled variable in predicting RF exposures is the degree to which a particular location (kitchen, bedroom, etc) will reflect RF energy created by installation of one or more smart meters, or a collector meter and multiple smart meters. The reflectivity of a surface is a measure of the amount of reflected radiation. It can be defined as the ratio of the intensities of the reflected and incident radiation. The reflectivity depends on the angle of incidence, the polarization of the radiation, and the electromagnetic properties of the materials forming the boundary surface. These properties usually change with the wavelength of the radiation. The reflectivity of polished metal surfaces is usually quite high (such as stainless steel and polished metal surfaces typical in kitchens, for example).

Reflections can significantly increase localized RF levels. High uncertainty exists about how extensive a problem this may create in routine installations of smart meters, where the utility and installers have no idea what kind of reflectivity is present within the interior of buildings.

Reflections in Equation 6 and 10 of the FCC OET Bulletin 65 include rather

minimal reflection factors of 100% and 60%, respectively. This report includes higher reflection factors in line with published studies by Hondou et al, 2006, Hondou, 2002 and Vermeeren et al, 2010. Reflection factors are modeled at 1000% and 2000% as well as at 60% and 100%, based on published scientific evidence for highly reflective environments. Hondou (2002) establishes that power density can be higher than conventional formulas predict using standard 60% and 100% reflection factors.

> *"We show that this level can reach the reference level (ICNIRP Guideline) in daily life. This is caused by the fundamental properties of electromagnetic field, namely, reflection and additivity. The level of exposure is found to be much higher than estimated by conventional framework of analysis that assumes that the level rapidly decreases with the inverse square distance between the source and the affected person."*

> *"Since the increase of electromagnetic field by reflective boundaries and the additivity of sources has not been recognized yet, further detailed studies on various situations and the development of appropriate regulations are required."*

Hondou et al (2006) establishes that power densities 1000 times to 2000 times higher than the power density predictions from computer modeling (that does not account properly for reflections) can be found in daily living situations. Power density may not fall off with distance as predicted by formulas using limited reflection factors. The RF hot spots created by reflection can significantly increase RF exposures to the public, even above current public safety limits.

> *"We confirm the significance of microwave reflection reported in our previous Letter by experimental and numerical studies. Furthermore, we show that 'hot spots' often emerge in reflective areas, where the local exposure level is much higher than average."*

"Our results indicate the risk of 'passive exposure' to microwaves."

"The experimental values of intensity are consistently higher than predicted values. Intensity does not even decrease with distance from the source."

"We further confirm the existence of microwave 'hotspots', in which he microwaves are 'localized'. The intensity measured at one hot spot 4.6 m from the transmitter is the same as that at 0.1 m from the transmitter in the case with out reflection (free boundary condition). Namely, the intensity at the hot spot is increased by ***approximately 2000 times*** *by reflection."* Emphasis added

"To confirm our experimental findings of the greater-than-predicted intensity due to reflection, as well as the hot spots, we performed two numerical simulations...". " intensity does not monotonically decrease from the transmitter, which is in clear contrast to the case without reflection."

"The intensity at the hot spot (X, Y, Z) = 1.46, -0.78, 105) around 1.8 m from the transmitter in the reflective boundary condition is ***approximately 1000 times higher*** *than that at the same position in the free boundary condition. The result of the simulation is thus consistent with our experiments, although the values differ owing to the different conditions imposed by computational limits."*
Emphasis added

"(t)he result of the experiment is also reproduced: a greater than predicted intensity due to reflection, as well as the existence of hot spots."

"In comparison with the control simulation using the free boundary condition, we find that the power density at the hot spot is increased ***by approximately a thousand times*** *by reflection."*
Emphasis added

Further, the author comments that:

"we may be passively exposed beyond the levels reported for electro-

medical interference and health risks."

"Because the peak exposure level is crucial in considering electro-medical interference, interference (in) airplanes, and biological effects on human beings, we also need to consider the possible peak exposure level, or 'hot spots', for the worst-case estimation."

Reflections and re-radiation from common building material (tile, concrete, stainless steel, glass, ceramics) and highly reflective appliances and furnishings are common in kitchens, for example. Using only low reflectivity FCC equations 6 and 10 may not be informative. Published studies underscore how use of even the highest reflection coefficient in FCC OET Bulletin 65 Equations 6 and 10 likely underestimate the potential for reflection and hot spots in some situations in real-life situations.

This report includes the FCC's reflection factors of 60% and 100%, and also reflection factors of 1000% and 2000% that are more in line with those reported in Hondou, 2001; Hondou, 2006 and Vermeeren et al, 2010. The use of a 1000% reflection factor in this report is still conservative in comparison to Hondou, 2006. A 1000% reflection factor is 12% of Hondou's larger power density prediction (or 121 times, rather than 1000 times)/ The 2000% reflection factor is 22% of Hondou's figure (or 441 times in comparison to 2000 times higher power density in Hondou, 2006).

Peak Power Limits

In addition to time-averaged public safety limits that require RF exposures to

be time-averaged over a 30 minute time period, the FCC also addresses peak power exposures. The FCC refers back to the ANSI/IEEE C95.1-1992 standard to define what peak power limits are.

The ANSI/IEEE C95.1-1999 standard defines peak power density as "*the maximum instantaneous power density occurring when power is transmitted.*" (p. 4) Thus, there is a second method to test FCC compliance that is not being assessed in any FCC Grants of Authorization.

> *"Note that although the FCC did not explicitly adopt limits for peak power density, guidance on these types of exposures can be found in Section 4.4 of the ANSI/IEEE C95.1-1992 standard."*
>
> *Page 10, OET 65*

The ANSI/IEEE limit for peak power to which the FCC refers is:

> *"For exposures in uncontrolled environments, the peak value of the mean squared field strengths should not exceed 20 times the square of the allowed spatially averaged values (Table 2) at frequencies below 300 MHz, or the equivalent power density of 4 mW/cm2 for f between 300 MHz and 6 GHz".*

The peak power exposure limit is 4000 uW/cm2 for all smart meter frequencies (all transmitting antennas) for any instantaneous RF exposure of 4 milliwatts/cm2 (4 mW/cm2) or higher which equals 4000 microwatts/cm2 (uW/cm2).

This peak power limit applies to all smart meter frequencies for both the smart meter (two-antenna configuration) and the collector meter (three-antenna configuration). All these antennas are within the 300 MHz to 6 GHz frequency range where the 4000 uW/cm2 peak power limit applies

(Table 3, ANSI/IEEE C95.1-1999, page 15).

Smart meters emit frequencies within the 800 MHz to 2400 MHz range.

Exclusions

This peak power limit applies to all parts of the body with the important exception of the eyes and testes.

The ANSI/IEEE C95.1-1999 standard specifically excludes exposure of the eyes and testes from the peak power limit of 4000 uW/cm2*. However, nowhere in the ANSI/IEEE nor the FCC OET 65 documents is there a lower, more protective peak power limit given for the eyes and testes (see also Appendix C).

> *"The following relaxation of power density limits is allowed for exposure of all parts of the body except the eyes and testes." (p.15)*
>
> *"Since most exposures are not to uniform fields, a method has been derived, based on the demonstrated peak to whole-body averaged SAR ratio of 20, for equating nonuniform field exposure and partial body exposure to an equivalent uniform field exposure. This is used in this standard to allow relaxation of power density limits for partial body exposure, except in the case of the eyes and the testes." (p.20)*
>
> *"In the case of the eyes and testes, direct relaxation of power density limits is not permitted."(p. 30)*

*Note: This leaves unanswered what instantaneous peak power is permissible from smart meters. The level must be below 4000 uW/cm2. This report shows clearly that smart meters can create instantaneous peak power exposures where the face (eyes) and body (testes) are going to be in

close proximity to smart meter RF pulses. RF levels at and above 4000 uW/cm2 are likely to occur if a person puts their face close to the smart meter to read data in real time. The digital readout of the smart meter requires close inspection, particularly where there is glare or bright sunlight, or low lighting conditions. Further, some smart meters are installed inside buildings within inches of occupied space, virtually guaranteeing exposures that may violate peak power limits. Violations of peak power limits are likely in these circumstances where there is proximity within about 6" and highly reflective surfaces or metallic objects. The eyes and testes are not adequately protected by the 4000 uW/cm2 peak power limit, and in the cases described above, may be more vulnerable to damage (Appendix C for further discussion).

METHODOLOGY

Radiofrequency fields associated with SMART Meters were calculated following the methodology described here. Prediction methods specified in Federal Communications Commission, Office of Engineering and Technology Bulletin 65 Edition 97-01, August 1997 were used in the calculations.[1]

Section 2 of FCC OET 65 provides methods to determine whether a given facility would be in compliance with guidelines for human exposure to RF radiation. We used equation (3)

$$S = \frac{P \times G \times \partial}{4 \times \pi \times R^2} = \frac{EIRP \times \partial}{4 \times \pi \times R^2} = \frac{1.64 \times ERP \times \partial}{4 \times \pi \times R^2}$$

where:

S = power density (in $\mu W/cm^2$)
P = power input to the antenna (in W)
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
∂ = duty cycle of the transmitter (percentage of time that the transmitter actually transmits over time)
R = distance to the center of radiation of the antenna

EIRP = PG
ERP = 1.64 EIRP

where:

EIRP = is equivalent (or effective) isotropically radiated power referenced to an isotropic radiator
ERP = is equivalent (or effective) radiated power referenced to a half-wave dipole radiator

Analysis input assumptions

1. SMART Meters [SK9AMI-4] have two RF transmitters (antennas) and are the type of smart meters typically installed on most buildings. They contain two antennas that transmit RF signals (916 MHz LAN and 2405 MHz Zigbee). The antennas CAN transmit simultaneously, and thus the maximum RF exposure is determined by the summation of power densities (from the FCC Certification Exhibit titled RF Exposure Report for FCC ID: SK9AMI-4).

   Model SK9AMI-4 transmits on 915 MHz is designated as LAN Antenna Gain for each model.

   a. Transmitter Power Output (TPO) used is as shown on the grant issued by the Telecommunications Certification Body (TCB).

   b. Antenna gain in dBi (decibels compared to an isotropic radiator) used comes from the ACS Certification Exhibit.

2. Collector Meters [SK9AMI-2A] have three RF transmitters (antennas)

and are installed where the utility needs them to relay RF signals from surrounding smart meters in a neighborhood. Collector meters contain a third antenna (GSM 850 MHz, 915 MHz LAN and 2405 MHz Zigbee). Collector meters can be placed on any building where a collector meter is needed to relay signals from the surrounding area. Estimates of the number of collector meters varies between one per 500 to one per 5000 smart meters. Collector meters will thus 'piggyback' the RF signals of hundreds or thousands of smart meters through the one collector meter. In a collector meter, only two of the three antennas can transmit simultaneously (the 915 MHz LAN and the GSM 850 MHz (from the FCC Certification Exhibit titled RF Exposure Report for FCC ID: SK9AMI-2A).

3. The Cell Relay transmitting at 2480 MHz is <u>not</u> on most meters and <u>not</u> considered in this analysis.

    a. Transmitter Power Output (TPO) used is as shown on the grant issued by the Telecommunications Certification Body (TCB).

    b. Antenna gain in dBi (decibels compared to an isotropic radiator) used comes from the ACS Certification Exhibit.

ERP (Effective Radiated Power) used in the computer modeling here is calculated using the TPO and antenna gain established for each model

Red figures used to Calculate ERP		**ACS and TCB Certification data sheet**							
		SK9AMI-2A				**SK9AMI-4**			
		ACS			TCB	**ACS**			TCB
Radio	Frequency	dBm	Watts	dBi	Watts	dBm	Watts	dBi	Watts
GSM	850	31.8	1.5136	-1.0					
LAN	915	21.92	0.1556	3.0		24.27	0.2673	**2.2**	**0.267**
LAN	916								0.257
GSM	1900	28.7	0.7413	1.0					
Register	2405	18.71	0.0743	**1.0**	**0.074**	19.17	0.0826	4.4	
Cell Relay	2480	-14.00	0.00004	4.00					

Assumptions: TPO per TCB , Antenna Gain per ACS Certification

ERP Calculation: **Bold** figures are used for single meter ERP in modeling

Type	TPO	dBi	dB	Mult	ERP	Freq
1900 GSM	0.741	1.0	-1.15	0.77	0.5689	1900
850 GSM	1.514	-1.0	-3.15	0.48	0.7328	850
RFLAN	0.267	2.2	0.05	1.01	**0.2704**	915
ZIG BEE	0.074	1.0	-1.15	0.77	**0.0570**	2405

Model
SK9AMI-4
SK9AMI-2A

Reflection Factor

This equation is modified with the inclusion of a ground reflection factor as recommended by the FCC. The ground reflection factor accounts for possible ground reflections that could enhance the resultant power density. A 60% (0.6) enhancement would result in a 1.6 (1 + 0.6) increase of the field strength or a $2.56 = (1.6)^2$ increase in the power density. Similar increases for larger enhancements of the field strength are calculated by the square of the original field plus the enhancement percentage. [2.3.4]

Reflection Factors:

$60\% = (1 + 0.6)^2 = 2.56$ times
$100\% = (1 + 1)^2 = 4$ times
$1000\% = (1 + 10)^2 = 121$ times
$2000\% = (1 + 20)^2 = 441$ times

Duty Cycle

How frequently SMART Meters can and will emit RF signals from each of the antennas within the meters is uncertain, and subject to wide variations in estimation. For this reason, and because FCC OET 65 mandates a 100% duty cycle (continuous exposure where the public cannot be excluded) the report gives RF predictions for all cases from 1% to 100% duty cycle at 10% intervals. The reader can see the variation in RF emissions predicted at various distances from the meter (or bank of meters) using this report at all duty cycles. Thus, for purposes of this report, duty cycles have been estimated from infrequent to continuous. Duty cycles for SMART Meters were calculated at:

Duty cycle ∂:

1% 50%

5%	60%
10%	70%
20%	80%
30%	90%
40%	100%

Continuous Exposure

FCC Bulletin OET 65 and the ANSI/IEEE C95.1-1992, 1999 requires that continuous exposure be calculated for situations where there is uncontrolled public access. Continuous exposure in this case means reading the tables at 100% duty cycle.

> *"Another feature of the exposure guidelines is that exposures, in terms of power density, E2 or H2, may be averaged over certain periods of time with the average not to exceed the limit for continuous exposure.*[11]
>
> *"As shown in Table 1 of Appendix A, the averaging time for occupational/controlled exposures is 6 minutes, while the averaging time for general population/uncontrolled exposures is 30 minutes. It is important to note that for general population/uncontrolled exposures it is often not possible to control exposures to the extent that averaging times can be applied. In those situations, it is often necessary to assume continuous exposure."* (FCC OET 65, Page 15)

Calculation Distances in Tables (3-inch increments)

Calculations were performed in 3-inch (.25 foot) increments from the antenna center of radiation. Calculations have been taken out to a distance of 96 feet from the antenna center for radiation for each of the conditions above. The antenna used for the various links in a SMART Meter is assumed to be at the center of the SMART Meter from front to back – approximately

3 inches from the outer surface of the meter.

Calculations have also been made for a typical nursery and kitchen. In the nursery it has been assumed that the baby in his or her crib that is located next to the wall where the electric SMART Meters are mounted. The closest part of the baby's body can be as close as 11 inches* from the meter antenna. In the kitchen it has been assumed that a person is standing at the counter along the wall where the electric SMART Meters are mounted. In that case the closest part of the adult's body can be located as close to the meter antenna as 28 inches.

The exposure limits are variable according to the frequency (in megahertz). Table 1, Appendix A show exposure limits for occupational (Part A) and uncontrolled public (Part B) access to radiofrequency radiation such as is emitted from AM, FM, television and wireless sources.

* Flush-mounted main electric panels that house smart meters are commonly installed; placing smart meters 5" 6" closer to occupied space than box-mounted main electric panels that sit outward on exterior building walls. Assumptions on spacing are made for flush-mounted panels.

Conditions Influencing Radiofrequency Radiation Level Safety

The location of the meter in relation to occupied space, or outside areas of private property such as driveways, walk-ways, gardens, patios, outdoor play

areas for children, pet shelters and runs, and many typical configurations can place people in very close proximity to smart meter wireless emissions. In many instances, smart meters may be within inches or a few feet of occupied space or space that is used by occupants for daily activities.

Factors that influence how high RF exposures may be include, but are not limited to where the meter is installed in relation to occupied space, how often the meters are emitting RF pulses (duty cycle), and what reflective surfaces may be present that can greatly intensify RF levels or create 'RF hot spots' within rooms, and so on. In addition, there may be multiple wireless meters installed on some multi-family residential buildings, so that a single unit could have 20 or more electric meters in close proximity to each other, and to occupants inside that unit. Finally, some meters will have higher RF emissions, because – as collector units – their purpose is to collect and resend the RF signals from many other meters to the utility. A collector meter is estimated to be required for every 500 to 5000 buildings. Each collector meter contains three, rather than two transmitting antennas. This means higher RF levels will occur on and inside buildings with a collector meter, and significantly more frequent RF transmissions can be expected. At present, there is no way to predict whose property will be used for installation of collector meters.

People who are visually reading the wireless meters 'by sight' or are visually inspecting and/or reading the digital information on the faceplate may have their eyes and faces only inches from the antennas.

Current standards for peak power limit do not have limits to protect the eyes

and testes from instantaneous peak power from smart meter exposures, yet relevant documents identify how much more vulnerable these organs are, and the need for such safety limits to protect the eyes and testes.

No Baseline RF Assessment

Smart meter and collector meter installation are taking place in an information vacuum. FCC compliance testing takes place in an environment free of other sources of RF, quite unlike typical urban and some rural environments. There is no assessment of baseline RF conditions already present (from AM, FM, television and wireless communication facilities (cell towers), emergency and dispatch wireless, ham radio and other involuntary RF sources. Countless properties already have elevated RF exposures from sources outside their own control.

Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

Neither the FCC, the CPUC, the utility nor the consumer know what portion of the allowable public safety limit is already being used up or pre-empted by RF from other sources already present in the particular location a smart meter may be installed and operated.

Consumers, for whatever personal reason, choice or necessity who have

already eliminated all possible wireless exposures from their property and lives, may now face excessively high RF exposures in their homes from smart meters. This may force limitations on use of their otherwise occupied space, depending on how the meter is located, building materials in the structure, and how it is furnished.

RESULTS, FINDINGS AND CONCLUSIONS

The installation of wireless 'smart meters' in California can produce significantly high levels of radiofrequency radiation (RF) depending on many factors (location of meter(s) in relation to occupied or usable space, duty cycle or frequency of RF transmissions, reflection and re-radiation of RF, multiple meters at one location, collector meters, etc).

Power transmitters that will relay information from appliances inside buildings with wireless smart meters produce high, localized RF pulses. Any appliance that contains a power transmitter (for example, dishwashers, washers, dryers, ranges and ovens, convection ovens, microwave ovens, flash water heaters, refrigerators, etc) will create another 'layer of RF signals' that may cumulatively increase RF exposures from the smart meter(s).

It should be emphasized that no single assertion of compliance can adequately cover the vast number of site-specific conditions in which smart meters are installed. These site-specific conditions determine public exposures and thus whether they meet FCC compliance criteria.

Tables in this report show either distance to an FCC safety limit (in inches) or they show the predicted (calculated) RF level at various distances in microwatts per centimeter squared (uW/cm2).

Both depictions are useful to document and understand RF levels produced by smart meters (or multiple smart meters) and by collector meters (or collections of one collector and multiple smart meters).

Large differences in the results of computer modeling occur in this report by bracketing the uncertainties (running a sufficient number of computer scenarios) to account for variability introduced by possible duty cycles and possible reflection factors.

FCC equations from FCC OET 65 provide for calculations that incorporate 60% or 100% reflection factors. Studies cited in this report document higher possible reflections (in highly reflective environments) and support the inclusion of higher reflection factors of 1000% and 2000% based on Vermeeren et al, 2010, Hondou et al, 2006 and Hondou, 2002. Tables in the report provide the range of results predicted by computer modeling for duty cycles from 1% to 100%, and reflection factors of 60%, 100%, 1000%, and 2000% for comparison purposes. FCC violations of time-weighted average calculations and peak power limit calculations come directly from FCC OET 65 and from ANSI/IEEE c95.1-1992, 1999. Duty cycle (or how frequently the meters will produce RF transmissions leading to elevated RF exposures) is uncertain, so the full range of possible duty cycles are included, based on best available information at this date.

- Tables 1-2 show radiofrequency radiation (RF) levels at 6" (to represent a possible face exposure). These are data tables.
- Tables 3-4 show RF levels at 11" (to represent a possible nursery/bedroom exposure). These are data tables.
- Tables 5-6 show RF levels at 28" to represent a possible kitchen work space exposure. These are data tables.
- Tables 7-9 show the distance to the FCC violation level for time-weighted average limits and for peak power limits (in inches). These are data tables.
- Tables 10-15 show where FCC violations may occur at the face, in the nursery or in the kitchen scenarios. These are colored tables highlighting where FCC violations may occur under all scenarios.
- Tables 16-29 show comparisons of smart meter RF levels with studies that report adverse health impacts from low-intensity, chronic exposure to similar RF exposures. These are colored tables highlighting where smart meter RF levels exceed levels associated with adverse health impacts in published scientific studies.
- Tables 30-31 show RF levels in comparison to Medtronics advisory limit for MRI exposures to radiofrequency radiation at 0.1 W/Kg or about 250 uW/cm2. These are colored tables highlighting where smart meter RF levels may exceed those recommended for RF exposure.
- Tables 32-33 show RF levels from smart meters in comparison to the BioInitiative Report recommendation of 0.1 uW/cm2 for chronic exposure to pulsed radiofrequency radiation.

Findings

RF levels from the various scenarios depicting normal installation and

operation, and possible FCC violations have been determined based on both time-averaged and peak power limits (Tables 1 - 14).

Potential violations of current FCC public safety standards for smart meters and/or collector meters in the manner installed and operated in California are illustrated in this Report, based on computer modeling (Tables 10 – 17).

Tables that present data, possible conditions of violation of the FCC public safety limits, and comparisons to health studies reporting adverse health impacts are summarized (Tables 18 – 33).

Where do predicted FCC violations occur for the 655 uW/cm2 time-averaged public safety limit at the face at 6" distance from the meter?

Table 10 shows that for <u>one smart meter</u>, no violations are predicted to occur at 60% or 100% reflection factor at any duty cycle, but violations are predicted to occur with nearly all scenarios using either 1000% or 2000% reflection factors.

Table 10 also shows that for <u>multiple smart meters</u>, FCC violations are predicted to occur at 60% reflection factor @ 50% to 100% duty cycles; and also at 100% reflection factor @ 30% to 100% duty cycle. All scenarios using either 1000% or 2000% reflection factors indicate FCC violations can occur (or conservatively at 12% to 22% of those in Hondou et al, 2006).

Table 11 shows that for <u>one collector meter</u>, one violation occurs at 60% @ 100% duty cycle; and at 100% reflection factor for duty cycles between 60% and 100%. Violations are predicted to occur at all scenarios using either 1000% or 2000% reflection factors.

Table 11 also shows that for <u>one collector meter plus multiple smart meters</u>, FCC violations can occur at 60%reflection factor @ 40% to 100% duty cycles; and also at 100% reflection factor @ 30% to 100% duty cycle. All scenarios using either 1000% or 2000% reflection factors indicate FCC violations can occur.

Where do predicted FCC violations occur for the 655 uW/cm2 time-averaged public safety limit in the nursery crib at 11" distance?

Table 12 shows that for one smart meter, no violations are predicted to occur at 60% or 100% reflection factor at any duty cycle, but violations would be predicted with nearly all scenarios using either 1000% or 2000% reflection factors.

Table 12 also shows that for multiple smart meters, no FCC violations are predicted to occur at 60% reflection factor at any duty cycle; and also at 100% reflection factor @ 90% and 100% duty cycle. All scenarios using either 1000% or 2000% reflection factors indicate FCC violations can occur.

Table 13 shows that for one collector meter, one violation occurs at 100% reflection @100% duty cycle. No violations at 60% reflection are predicted. Violations are predicted to occur at all scenarios using 1000% reflection except @ 1% duty cycle. All 2000% reflection scenarios indicate FCC violations can occur.

Table 13 shows that for one collector meter plus multiple smart meters, FCC violations are not predicted to occur at 60% reflection factor. At 100% reflection factor, violations are predicted at 60% to100% duty cycles. FCC violations are predicted for all1000% and 2000% reflection factors with the exception of 1000% reflection at 1% duty cycle.

Where do predicted FCC violations occur for the 655 uW/cm2 time-averaged public safety limit in the kitchen work space at 28" distance?

Table 14 shows that for one smart meter, no violations are predicted to occur at 60% or 100% reflection factor at any duty cycle. Violations would be predicted with scenarios of 1000% reflection @ 70% to 100% duty cycles and at 2000% reflection factor @ 20% to 100% duty cycles.

Table 14 also shows that for multiple smart meters, no FCC violations are predicted to occur at 60% or at the 100% reflection factors at any duty cycle. Violations are predicted at 1000% reflection factor @ 70% to 100% duty cycles and at 2000% reflection factor @20% to 100% duty cycles.

Table 15 shows that for one collector meter, one violation occurs at 100% reflection @100% duty cycle. No violations at 60% reflection are predicted. Violations are predicted to occur at all scenarios using 1000% reflection except @ 1% duty cycle. All 2000% reflection scenarios indicate FCC violations can occur.

Table 15 shows that for one collector meter plus multiple smart meters, FCC violations are not predicted to occur at 60% or at 100% reflection factors at any duty cycle. At 1000% reflection factor, violations are predicted at 30% to 100% duty cycles. FCC violations are also predicted at 2000% reflection factor @10 to 100% duty cycles.

Where can peak power limits be violated? The peak power limit of 4000 uW/cm2 instantaneous public safety limit at 3" distance? This limit may be exceeded wherever smart meters and collector meters (face plate or any portion within 3" of the internal antennas can be accessed directly by the public.

Table 16 shows that for one smart meter, no violations are predicted to occur at 60% or 100% reflection factor at any duty cycle. Peak power limit violations would be predicted with scenarios of 1000% reflection @ 10% to 100% duty cycles and at 2000% reflection factor @ 10% to 100% duty cycles.

Table 16 also shows that for multiple smart meters, peak power limit violations are predicted to occur at 60% reflection @ 60% to 100% duty cycle and for 100% reflection @ 40% to 100% duty cycles. Violations are predicted at 1000% reflection factor @ 10% to 100% duty cycles and at 2000% reflection factor @1% to 100% duty cycles.

Table 17 shows that for one collector meter, peak power limit violations are predicted to occur at 60% reflection @80% to 100% duty cycles and at 100% reflection @ 50% to 100% duty cycles. Violations of peak power limit are predicted to occur at all scenarios using 1000% reflection except @ 1%; and for 2000% reflection violations of peak power limit are predicted at all duty cycles.

Table 17 shows that for one collector meter plus multiple smart meters, peak power limit violations are predicted to occur at 60% @ 40% to 100% and 100% reflection @ 30% to 100% duty cycles. At 1000% and 2000% reflection factors, peak power limit violations are predicted at all duty cycles.

Where are RF levels associated with inhibition of DNA repair in human stem cells at 92.5 uW/cm2 exceeded the in the nursery crib at 11" distance?

Table 18 shows that for one smart meter, RF exposures associated with inhibition of DNA repair in human stem cells are predicted to occur at 60% reflection factor@ 70% to 100% duty cycles, and at 100% reflection factor @ 50% to 100% duty cycles. All scenarios using either 1000% or 2000% reflection factors exceed these RF exposures except 1000% at 1% duty cycle.

Table 18 also shows that for multiple smart meters, RF exposures associated with inhibition of DNA repair in human stem cells are predicted to occur at 60% reflection factor@ 20% to 100% duty cycles, and at 100% reflection factor @ 20% to 100% duty cycles. All scenarios using either 1000% or 2000% reflection factors exceed these RF exposure levels except 1000% at 1% duty cycle.

Table 19 shows that for one collector meter, RF exposures associated with inhibition of DNA repair in human stem cells are predicted to occur at 60% reflection factor@ 30% to 100% duty cycles, and at 100% reflection factor @ 20% to 100% duty cycles. All scenarios using either 1000% or 2000% reflection factors exceed these RF exposure levels.

Table 19 shows that for one collector meter plus multiple smart meters, RF exposures associated with inhibition of DNA repair in human stem cells are predicted to occur at 60% reflection factor@ 20% to 100% duty cycles, and at 100% reflection factor @ 10% to 100% duty cycles. All scenarios using either 1000% or 2000% reflection factors exceed these RF exposure levels.

Where are RF levels associated with pathological leakage of the blood-brain barrier at 0.4 – 8 uW/cm2 exceeded the in the nursery crib at 11" distance?

Table 20 shows that for one smart meter, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 10% to 100% duty cycles, and at 100% reflection factor @ 5% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 20 also shows that for multiple smart meters, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 5% to 100% duty cycles, and at 100% reflection factor @ 5% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 21 shows that for one collector meter, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 5% to 100% duty cycles, and at 100% reflection factor @ 5% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 21 shows that for one collector meter plus multiple smart meters, .RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 5% to 100% duty cycles, and at 100% reflection factor @ 1% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Where are RF levels associated with adverse neurological symptoms, cardiac problems and increased cancer risk exceeded in the nursery crib at 11" distance?

Table 22 shows that for one smart meter, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 22 shows that for multiple smart meters, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty

cycles and at all reflection factors in the nursery in the crib.

Table 23 shows that for one collector meter, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Table 23 shows that for one collector meter plus multiple smart meterss, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the nursery in the crib.

Where are RF levels associated with inhibition of DNA repair in human stem cells at 92.5 uW/cm2 exceeded the in the kitchen work space at 28" distance?

Table 24 shows that for one smart meter, RF levels do not exceed those associated with inhibition of DNA repair at 60% or 100% reflection factor at any duty cycle. RF levels are exceeded at 1000% @ 10% to 100% duty cycles; and at 2000% reflection factor @ 5% to 100% duty cycles.

Table 24 also shows that for multiple smart meters, RF levels do not exceed those associated with inhibition of DNA repair at 60% or 100% reflection factor at any duty cycle. RF levels are exceeded at 1000% @ 5% to 100% duty cycles; and at 2000% reflection factor @ 1% to 100% duty cycles.

Table 25 shows that for one collector meter, RF levels do not exceed those associated with inhibition of DNA repair at 60% at any duty cycle; at 100% reflection factor they are exceeded at 70% to 100% duty cycles.. RF levels are exceeded at 1000% @ 5% to 100% duty cycles; and at 2000% reflection factor @ 1% to 100% duty cycles.

Table 25 shows that for one collector meter plus multiple smart meters, RF levels exceed those associated with inhibition of DNA repair at 60% reflection@100% duty cycle; at 100% reflection factor they are exceeded at 70% to 100% duty cycles.. RF levels are exceeded at 1000% @ 5% to 100% duty cycles; and at 2000% reflection factor @ 1% to 100% duty cycles.

Where are RF levels associated with pathological leakage of the blood-brain barrier and neuron death at 0.4 – 8 uW/cm2 risk in the kitchen work space at 28" distance?

Table 26 shows that for one smart meter, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 40% to 100% duty cycles, and at 100% reflection factor @ 30% to 100% duty cycles, and at all 1000% and 2000% reflections. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the kitchen work space except at 1% duty cycle for 60% and 100% reflections.

Table 26 also shows that for multiple smart meters, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 30% to 100% duty cycles, and at 100% reflection factor @ 20% to 100% duty cycles, and at all 1000% and 2000% reflections. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the kitchen.

Table 27 shows that for one collector meter, RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 20% to 100% duty cycles, and at 100% reflection factor @ 10% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Table 27 shows that for one collector meter plus multiple smart meters, .RF exposures associated with pathological leakage of the blood-brain barrier at 8 uW/cm2 are predicted to occur at 60% reflection factor@ 20% to 100% duty cycles, and at 100% reflection factor @ 20% to 100% duty cycles. RF levels at 0.4 uW/cm2 (the lower end of the range) are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Where are RF levels associated with adverse neurological symptoms, cardiac problems and increased cancer risk in the kitchen work space at 28" distance?

Table 28 shows that for one smart meter, RF exposures associated with

adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Table 28 shows that for multiple smart meters, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Table 29 shows that for one collector meter, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Table 29 shows that for one collector meter plus multiple smart meterss, RF exposures associated with adverse neurological symptoms above 0.1 uW/cm2 are exceeded at all duty cycles and at all reflection factors in the kitchen work space.

Where do RF levels exceed the Medtronics Safety Advisory?

Table 30: At no duty cycles for either 60% or 100% reflection factors; between 10% and 100% duty factors for 1000% and between 5% and 100% duty factors for 2000% reflection (for one smart meter).

Table 30: At 60% reflection @ 60% to 100% duty cycle; and at 100% reflection @ 40% to 100% duty cycle; at 1000% reflection @ 5% to 100% duty cycle and for all duty cycles at 2000% reflection (for multiple smart meters).

Table 31: At 60% reflection @ 70% to 100% duty cycle; at 100% reflection at 50% to 100% duty cycles; at 1000% reflection @ 5% to 100% and at all duty cycles for 2000% reflection (for one collector meter).

Table 31: At 60% reflection @ 40% to 100% duty cycle; at 100% reflection at 30% to 100% duty cycles; and at all duty cycles for both 1000% reflection and for 2000% reflection (for one collector meter plus three smart meters).

Where are RF levels associated with smart meters in all their configurations (one meter, multiple smart meters, one collector meter, one collector plus multiple smart meters) above those recommended in the BioInitiative Report

(2007)?

Tables 32 and 33 depict the distance from the center of radiation for the smart meter(s) and collector meter scenarios in feet. The distances (in feet) at which RF levels exceed the BioInitiative Report recommended limit of 0.1 uW/cm2 is as small as 3.4' (one smart meter at 60% reflection and 1% duty cycle). At 60% reflection and 100% duty cycle, the distance to the BioInitiative recommended limit increases to 34 feet for one smart meter.

When multiples of smart meters are considered, the shortest distance to where the BioInitiative Report recommended limit is exceeded is 9.7 feet (for 60% reflection @ 1% duty cycle). It increases to 97' @100% duty cycle for multiple smart meters.

For a single collector meter, the shortest distance to a BioInitiative Report exceedence is 5.9 feet (60% reflection @ 1% duty cycle). At 60% reflection and 100% duty cycle, it increases to 59 feet.

For a collector and multiple smart meters, the shortest distance is 10.9 feet at 60% reflection @ 1% duty cycle, and increases to108 feet at 100% duty cycle.

Conclusions

FCC compliance violations are likely to occur under widespread conditions of installation and operation of smart meters and collector meters in California. Violations of FCC safety limits for uncontrolled public access are identified at distances within 6" of the meter. Exposure to the face is possible at this distance, in violation of the time-weighted average safety limits (Tables 10-11). FCC violations are predicted to occur at 60% reflection and 100% reflection factors*, both used in FCC OET 65 formulas for such calculations for time-weighted average limits. Peak power limits are not violated at the 6" distance (looking at the meter) but can be at 3" from the meter, if it is touched.

This report has also assessed the potential for FCC violations based on two examples of RF exposures in a typical residence. RF levels have been calculated at distances of 11" (to represent a nursery or bedroom with a crib or bed against a wall opposite one or more meters); and at 28" (to represent a kitchen work space with one or more meters installed on the kitchen wall).

FCC compliance violations are identified at 11" in a nursery or bedroom setting using Equation 10* of the FCC OET 65 regulations (Tables 12-13). These violations are predicted to occur where there are multiple smart meters, or one collector meter, or one collector meter mounted together with several smart meters.

FCC compliance violations are not predicted at 28" in the kitchen work space for 60% or for 100% reflection calculations. Violations of FCC public safety limits are predicted for higher reflection factors of 1000% and 2000%, which are not a part of FCC OET 65 formulas, but are included here to allow for situations where site-specific conditions (highly reflective environments, for example, galley-type kitchens with many highly reflective stainless steel or other metallic surfaces) may be warranted (see Methodology Section).

In addition to exceeding FCC public safety limits under some conditions of installation and operation, smart meters can produce excessively elevated RF exposures, depending on where they are installed. With respect to absolute RF exposure levels predicted for occupied space within dwellings, or outside areas like patios, gardens and walk-ways, RF levels are predicted to be substantially elevated within a few feet to within a few tens of feet from the

meter(s).

For example, one smart meter at 11" from occupied space produces somewhere between 1.4 and 140 microwatts per centimeter squared (uW/cm2) depending on the duty cycle modeled (Table 12). Since FCC OET 65 specifies that continuous exposure be assumed where the public cannot be excluded (such as is applicable to one's home), this calculation produces an RF level of 140 uW/cm2 at 11" using the FCCs lowest reflection factor of 60%. Using the FCC's reflection factor of 100%, the figures rise to 2.2 uW/cm2 – 218 uW/cm2, where the continuous exposure calculation is 218 uW/cm2 (Table 12). These are very significantly elevated RF exposures in comparison to typical individual exposures in daily life. Multiple smart meters in the nursery/bedroom example at 11" are predicted to generate RF levels from about 5 to 481 uW/cm2 at the lowest (60%) reflection factor; and 7.5 to 751 uW/cm2 using the FCCs 100% reflection factor (Table 13). Such levels are far above typical public exposures.

RF levels at 28" in the kitchen work space are also predicted to be significantly elevated with one or more smart meters (or a collector meter alone or in combination with multiple smart meters). At 28" distance, RF levels are predicted in the kitchen example to be as high as 21 uW/cm2 from a single meter and as high as 54.5 uW/cm2 with multiple smart meters using the lower of the FCCs reflection factor of 60% (Table 14).

Using the FCCs higher reflection factor of 100%, the RF levels are predicted to be as high as 33.8 uW/cm2 for a single meter and as high as 85.8 uW/cm2 for multiple smart meters (Table 14). For a single collector meter, the range

is 60.9 to 95.2 uW/cm2 (at 60% and 100% reflection factors, respectively) (from Table 15).

Table 16 illustrates predicted violations of peak power limit (4000 uW/cm2) at 3" from the surface of a meter. FCC violations of peak power limit are predicted to occur for a single collector meter at both 60% and 100% reflection factors. This situation might occur if someone touches a smart meter or stands directly in front.

Uncertainty About Actual RF Levels

Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

Neither the FCC, the CPUC, the utility nor the consumer know what portion of the allowable public safety limit is already being used up or pre-empted by RF from other sources already present in the particular location a smart meter may be installed and operated.

Consumers, for whatever personal reason, choice or necessity who have already eliminated all possible wireless exposures from their property and lives, may now face excessively high RF exposures in their homes from smart meters. This may force limitations on use of their otherwise occupied

space, depending on how the meter is located, building materials in the structure, and how it is furnished.

People who are afforded special protection under the federal Americans with Disabilities Act are not sufficiently acknowledged nor protected. People who have medical and/or metal implants or other conditions rendering them vulnerable to health risks at lower levels than FCC RF limits may be particularly at risk (Tables 30-31). This is also likely to hold true for other subgroups, like children and people who are ill or taking medications, or are elderly, for they have different reactions to pulsed RF. Childrens' tissues absorb RF differently and can absorb more RF than adults (Christ et al, 2010; Wiart et al, 2008). The elderly and those on some medications respond more acutely to some RF exposures.

Eyes and Testes - Safety standards for peak exposure limits to radiofrequency have not been developed to take into account the particular sensitivity of the eyes, testes and other ball shaped organs. There are no peak power limits defined for the eyes and testes, and it is not unreasonable to imagine situations where either of these organs comes into close contact with smart meters and/or collector meters, particularly where they are installed in multiples (on walls of multi-family dwellings that are accessible as common areas).

What can be determined from the relevant standards (FCC and ANSI/IEEE and certain IEEE committee documents is that the eye and testes are potentially much more vulnerable to damage, but that there is no scientific

basis on which to develop a new, more protective safety limit. What is certain is that the peak power limit of 4000 uW/cm2 exceeds what is safe (Appendix C).

In summary, no positive assertion of safety can be made by the FCC, nor relied upon by the CPUC, with respect to pulsed RF when exposures are chronic and occur in the general population. Indiscriminate exposure to environmentally ubiquitous pulsed RF from the rollout of millions of new RF sources (smart meters) will mean far greater general population exposures, and potential health consequences. Uncertainties about the existing RF environment (how much RF exposure already exists), what kind of interior reflective environments exist (reflection factor), how interior space is utilized near walls), and other characteristics of residents (age, medical condition, medical implants, relative health, reliance on critical care equipment that may be subject to electronic interference, etc) and unrestrained access to areas of property where meter is located all argue for caution.

Electronic Interference

Consumers may experience electronic interference (electromagnetic interference or EMI) from smart meter wireless signals. The FCC also is charged with investigating consumer complaints about electronic interference.

> *"The FCC requires that unlicensed low-power RF devices must not create interference and users of such equipment must resolve any interference problems or cease operation. According to the FCC*

(47CFR Part 15): "The operator of a radio frequency device shall be required to cease operating the device upon notification by a Commission representative that the device is causing harmful interference. Operation shall not resume until the condition causing the harmful interference has been corrected."

(EPRI, 2010)

Medical and other critical care equipment in the home environment may not work, or work properly due to electronic interference from smart meters.

Security systems, surveillance monitors and wireless intercoms may be rendered inoperable or unreliable. Some cordless telephones do not work reliably, or have substantial interference from smart meter RF emissions.

Electronic equipment and electrical appliances may be damaged or have to be replaced with other, newer equipment in order not to be subject to electromagnetic interference from smart meter RF bursts.

Americans With Disabilities Act

People who have medical implants, particularly metal implants, may be more sensitive to spurious RF exposures for two reasons. Electromagnetic interference (EMI) with critical care medical equipment and medical implants is a potentially serious threat. Patients with deep-brain stimulators (Parkinson's disease patients) have reported adverse health effects due to RF from various environmental sources like security gates and RFID scanners. Patients with deep brain stimulators have reported the devices to be reprogramming or electrodes shut-down as a result of encounters with

wireless RFID scanners. One manufacturer, Medtronics, has issued a warning for DBS implant patients to limit RF exposure to less than 0.1 W/Kg SAR (or sixteen times lower than for the general public) for MRI exposures.

The IEEE SC4 committee (2001) considered changes to existing ANSI/IEEE standards adopted in 1992 (C95.1-1992). They discussed vulnerable organs (eyes, testes) and metallic implants that can intensify localized RF exposures within the body and its tissues.

> *"Question 20: Are there specific tissues or points within the body that have particularly high susceptibilities to local heating due to thermal properties in the immediate vicinity of the tissue?"*

Committee minutes include the following discussion on metallic implants.

> "*Metallic implants are an interesting example of this question. There can be very localized high field concentrations around the tips of long metal structures, in the gaps of wire loops. Of course, these metal devices don't create energy, but can only redistribute it, so the effect is limited to some extent. Also the high thermal conductivity and specific heat capacity make them good thermal sinks for any localized heat sources generated around them.*"

Since deep brain stimulators in Parkinson's patients involve metal implants that are essentially long metal structures with tips that interface with brain tissue and nerves within the brain and body, exposing such patients with implants to high levels of pulsed RF that can produce localized, high RF within the body is certainly inadvisable. It is clear the IEEE SC4 committee recognized the potential risk by to calling such implanted metallic devices

good 'thermal sinks' for localized heating dissipation.

The FCC's Grants of Authorization and other certification procedures do not ensure adequate safety to safeguard people under Department of Justice protection under the Americans with Disabilities Act.

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Appendix A Tables A1- A 48

RADIOFREQUENCY RADIATION VERSUS DISTANCE

One Smart Meter

Table A1	60% Reflection	(1%-100% duty cycles in each table)
Table A2	100% Reflection	(1%-100% duty cycles in each table)
Table A3	1000% Reflection*	(1%-100% duty cycles in each table)
Table A4	2000% Reflection*	(1%-100% duty cycles in each table)

Multiple Smart Meters (Four)**

Table A5	60% Reflection	(1%-100% duty cycles in each table)
Table A6	100% Reflection	(1%-100% duty cycles in each table)
Table A7	1000% Reflection	(1%-100% duty cycles in each table)
Table A8	2000% Reflection	(1%-100% duty cycles in each table)

One Collector Meter

Table AA9	60% Reflection	(1%-100% duty cycles in each table)
Table A10	100% Reflection	(1%-100% duty cycles in each table)
Table A11	1000% Reflection	(1%-100% duty cycles in each table)
Table A12	2000% Reflection	(1%-100% duty cycles in each table)

One Collector Meter + 3 SM**

Table A13	60% Reflection	(1%-100% duty cycles in each table)
Table A14	100% Reflection	(1%-100% duty cycles in each table)
Table A15	1000% Reflection	(1%-100% duty cycles in each table)
Table A16	2000% Reflection	(1%-100% duty cycles in each table)

TABLES OF CRITICAL DISTANCES IN NURSERY (CRIB AT 11") AND KITCHEN SINK (AT 28") FROM SMART METER (A17-A48)

Table A17 Nursery Set –
Table A18 One Smart Meter – Critical Distance 11" to baby in crib
Table A19 60%, 100%, 1000%, 2000% duty cycle
Table A20 1% thru 90% duty cycle

Table A21 Nursery Set –
Table A22 Eight Smart Meters – Critical Distance 11" to baby in crib
Table A23 60%, 100%, 1000%, 2000% reflection
Table A24 1% thru 100% duty cycle

Table A25 Nursery Set –
Table A26 One Collector– Critical Distance 11" to baby in crib
Table A27 60%, 100%, 1000%, 2000% reflection
Table A28 1% thru 100% duty cycle

Table A29 Nursery Set –
Table A30 One Collector Meter + 7 SM– Critical Distance 11" to baby crib
Table A31 60%, 100%, 1000%, 2000% reflection
Table A32 1% thru 100% duty cycle

Table A33 Kitchen Set –
Table A34 One Smart Meter – Critical Distance 28" to kitchen sink person
Table A35 60%, 100%, 1000%, 2000% reflection
Table A36 1% thru 100% duty cycle

Table A37 Kitchen Set -
Table A38 Eight Smart Meters – Critical Distance 28" to kitchen sink person
Table A39 60%, 100%, 1000%, 2000% reflection
Table A40 1% thru 100% duty cycle

Table A41 Kitchen Set –

Table A42	One Collector – Critical Distance 28" to kitchen sink person
Table A43	60%, 100%, 1000%, 2000% reflection
Table A44	1% thru 100% duty cycle
Table A45	Kitchen Set –
Table A46	One Collector + 7 SM – Critical Distance 28" to kitchen
Table A47	60%, 100%, 1000%, 2000% reflection
Table A48	1% thru 100% duty cycle

Appendix B Tables 1 – 33 of Report

Data Tables, FCC Violation Tables, Health Comparisions

Table 1	Radiofrequency Level at Each Duty Cycle and Reflection Factor at 6" in uW/cm2 (One Meter, Four Meters)
Table 2	Radiofrequency Level at Each Duty Cycle and Reflection Factor at 6" in uW/cm2 (One Collector, 1C + 3 SM)
Table 3	RF Level of Each Duty Cycle and Reflection Factor at 11" in uW/cm2 in the Nursery (One meter, Four meters)
Table 4	RF Level of Each Duty Cycle and Reflection Factor at 11" in uW/cm2 in the Nursery (One Collector, 1C + 3 SM)
Table 5	RF Level of Each Duty Cycle and Reflection Factor at 28" in uW/cm2 in the Kitchen (One Meter, Four Meters)
Table 6	RF Level of Each Duty Cycle and Reflection Factor at 28" in uW/cm2 in the Kitchen (One Collector, 1C + 3 SM)
Table 7	Distance at which FCC Safety Limit is exceeded for 655 uW/cm2 time-weighted average limit (One Meter, Four Meters)
Table 8	Distance at which FCC Safety Limit is exceeded for 571/624 uW/cm2

	in Smart Meters at 11"	(One Collector, 1 C + 3 SM)
Table 32	Predicted RF levels exceed BioInitiative Report recommended limit of 0.1 uW/cm2	(One SM, 4 SM)
Table 33	Predicted RF levels exceed BioInitiative Report recommended limit of 0.1 uW/cm2	(1 Collector 1C + 3 SM)

Appendix C

Other Sources of Information on sensitivity of the eyes and testes

In the most recent proposed revisions of RF safety standards, the IEEE SC4

committee (2001) deliberated at length over the problem of peak power limits and non-uniform RF exposure with respect to the eye and testes. The quotes below come from committee drafts submitted in response to questions from the committee moderator.

ANSI/IEEE standards adopted in 1992 (C95.1-1992) and 1999 revisions
June 2001 SC-4 Committee Minutes

These committee discussions are informative on the issue of particular organ sensitivity to RF, and unanswered questions and differences of opinion on the subject among members. They discussed vulnerable organs (eyes, testes) and metallic implants that can intensify localized RF exposures within the body and its tissues (see also discussion on metallic implants).

Question 20: Are there specific tissues or points within the body that have particularly high susceptibilities to local heating due to thermal properties in the immediate vicinity of the tissue?

Committee minutes include the following discussion on the particular sensitivities of 'ball shaped' organs including the eyes and testes.

"*Eye balls are commonly regarded as the critical organ*"

"In the range of a few GHz (gigahertz*), reasonances may occur in ball shaped eyes and testes. They are also electrically and thermally partly insulated from other tissues. Additionally these organs or some of their parts (lens) are thermally a little bit more vulnerable than other tissues."*

"(m)odeling has noted that rapid changes in dialectrics such as cerebral spinal fluid in the ventricles of the brain and surrounding brain tissue lead to high calculated SARs. Secondly, exposure of the eye to microwave radiation can lead to increased temperature that is sufficient to damage tissues. The temperature rise will, of course, depend on the intensity of the irradiation, how well the energy is coupled into tissues, and how well the deposited energy is removed by normal mechanisms such as conduction and blood flow. Microwaves at the lower frequencies will be deposited deeper in the eye, while at higher frequencies they will be absorbed near the front surface of the eye. The eye does not efficiently remove heat deposited internally by microwave exposure. The main avenue of heat removal is

conduction and blood flow through the retina and choroid. The lens has been thought to be the most vulnerable tissue since it has no blood flow. Other than conduction through the sclera and convection from the surface of the cornea, heat removal is poor compared to other body tissues. Because the lens is avasular it has been thought to be particularly sensitive to thermal effects of microwave exposure. These facts have led many investigators to postulate that the poor heat dissipation from within the eye of humans and other animals may lead to heat buildup and subsequent thermal damage."

"Eyes do not have good blood circulation and testes have lower than body temperature."

"These organs are not well-perfused, hence have been singled out for the exclusion."

"Are the above numbers valid for all parts of the body in all exposure conditions over the time averaging period of the exposure? They (the basic limits) were derived in the manner you describe in body reasonance conditions i.e. coherent exposure over the whole body length of a human. Could the limit values of SAR be increased for partial body exposure? Yes, but we do not have the data to make this decision. In the near field of a source, clearly the limit value will depend on frequency (depth of penetration), organ blood supply and tolerance of that organism to sustain a certain rate of temperature increase during the time averaging period and the environmental conditions. If you have to deal with possible pathologies of organs then matters become even more complicated, because you are dealing not only with heat physiology, but also with general pathology, whose books are much thicker than those on physiology.

#38
1-11-11

From: Glen Chase [glenchase@aol.com]

Sent: Monday, January 10, 2011 3:34 AM

To: 112-Clerk of the Board Everyone; 100-District 1 (831) 647-7991; 100-District 2 (831) 755-5022; 100-District 3 (831) 385-8333; 100-District 4 (831) 883-7570; 100-District 5 (831) 647-7755

Subject: Please Remove and Continue Consent Agenda #38 to later meeting

To: Monterey County Board of Supervisors
From: Professor Glen Chase
Re: Consent Agenda Item #38: Written Report from Hugh Stallworth, Health Officer regarding Wireless smart meters (Referral # 2010.20)
Date: January 9, 2011

Dear Supervisors,

Smart Meter Referral # 2010.20 from the Public Health Department ("Referral") is inaccurate, incorrect and lacking support for its conclusions.

The "Referral" is identical to PG&E's sales presentation to the public.

PG&E's own industry has vehemently criticized PG&E for misrepresenting issues to customers to the extent that PG&E is jeopardizing a successful smart grid.

Two-dozen cities and counties have rejected PG&E's claims (identical to the claims in this referral) and taken various actions including resolutions against, moratorium ordinances and support for the Huffman AB 37 bill, calling for a moratorium and opt-out choice.

a. The 1-watt label of Wireless smart meters and comparison to cell phones is deceiving by comparing apples and oranges. That comparison would have a 100 watt light bulb being as damaging as 100 cell phones, yet there are manufacturer warnings to keep a cell phone away from the head, and no need for warnings on light bulbs.

b. PG&E Wireless smart meters transmit radiation constantly throughout the 24-hour day. PG&E claiming only 45 seconds per day transmission is dishonest and the Public Health Department repeating that is naïve or irresponsible. PG&E is attempting to have the public believe that radiation transmissions are limited to a short 45 second period per day, a time that is negligible as a percent of the day and easy to avoid. That is false.

Pulsed signal radiation (the type emitted by Wireless smart meters) is considerably more dangerous than steady signal transmissions. Wireless smart meter pulses last only thousandths of a second, so 25,000 radiation pulses per day can occur from a single meter.

The same PG&E deceptive argument could similarly characterize a 24-hour wartime aerial bombing of a city as only a five second attack, if only the times of detonations are added, since each bomb detonation is just a tiny fraction of a second.

c. PG&E held 35 "Information" meetings in Marin County (not just 20 as in Monterey County) and at

the conclusion of those meetings, The Marin County Board of Supervisors unanimously passed an Urgency Moratorium Ordinance disallowing PG&E Wireless smart meter installation and related equipment.

Santa Cruz County had a three-month urgency ordinance from October to December 31, 2010. After further investigation and no attempt by PG&E Corporate to respond to problems, the Santa Cruz County Board of Supervisors has re-written and strengthened their ordinance and it is expected to pass unanimously on Tuesday, January 11, 2011 for a full year.

d. Security: PG&E is currently attempting to legally relieve their responsibility and liability of damage from third party access to customer information. The nature of Wireless meters creates security problems that don't exist with wired options.

e. The data collected by PG&E Wireless Smart Meters is not accurate.

State Senator Florez held hearings on PG&E Wireless meter accuracy and increased utility bills and Senator Florez commented that PG&E is lying to us.

"Structure Group" did the report that pretended to validate PG&E wireless meters. Structure Group admitted that they accepted information from PG&E and assumed that it was true. Structure Group is in-bed with PG&E and PG&E is one of Structure Group's largest clients. Structure Group did not test the Wireless meters as they are deployed in the field in a Mesh Network and they did not reconcile the tens of thousands of complaints. Instead, they tested a small number of units in the laboratory, which had already been done prior to the tens of thousands of complaints.

f. Opting out. The smart grid is intended to move energy from one region of the country where a surplus is available to another region where demand has peaked due to weather or other customer demands. This ability to "Transfer" and receive energy from other regions reduces the number of power plants required in each region for peak demands.

The smart grid does NOT require Smart Meters on every home. Only regional information is helpful, not the energy usage of every single home.

As Nielson monitors only a tiny fraction of TV's in the United States to know with tremendous accuracy what TV shows the people are watching, the Smart grid system similarly only requires a sampling to know a region's usage.

Other "Smart" systems in the United States do not require every person to participate. After multiple complaints were filed, the PUC of Maine is currently reviewing the option of opt-out after approving a comprehensive system.

Assemblyman Huffman's Bill AB 37 includes an opt-out choice and a moratorium until alternatives are considered.

As the problems with Wireless meters are becoming more commonly known, even PG&E has admitted that they are looking into alternatives for opting out from Wireless meters.

g. Wireless. The Federal smart grid program does NOT mandate Wireless meters.

The concept of "Smart" is NOT connected to "Wireless." PG&E creates that false connection with the public because the public is attracted to "Smart" and "Wireless" allows PG&E to eliminate thousands of jobs and realize huge windfall profits (not shared with customers).

Other jurisdictions in the U.S. are installing wired systems (fiber optics or other shielded cable systems) for greater speed, greater security and for protecting people and the broader environment from the signal radiation emitted by wireless meter transmissions.

Italy has installed a smart system with 25 million Wired meters.

Other European countries are changing from wireless to wired systems in utility smart meters and Internet service in their schools. To my knowledge, NO country is moving from wired to wireless, only from wireless to wired, as the problems with Wireless are becoming more widely known.

h. The FCC has not given assurance of safety of these PG&E Wireless meters.

PG&E has continued to NOT disclose pulsed peak information on these Wireless meters even though elected officials and the public have requested that information for a long time now.

The public is told that these meters are modern technology replacing the old method of measuring utility use. But the public does not realize that this program places a significant transmitting antenna and receiving antenna on their home. If the public saw these antennas placed on their walls or roofs, or even realized their strength, they would object, but because they are out of sight within the Wireless meter enclosure, people don't realize it.

The manufacturers of the Wireless meters advertise that the signals go through mountains, quite different than the image portrayed by PG&E Corporate.

Conclusion:

The Smart Meters Referral #2010.20 is not up to the quality standards that the Monterey Board of Supervisors deserves to be familiar with the subject and certainly not to make decisions for the public welfare.

There is no critical analysis in the "Referral." Rather, it passes along a dishonest sales brochure of PG&E Corporate to the Monterey County Board of Supervisors.

Please contact me if you have any questions.

If you decide to pull this item from the consent agenda and agendize this subject at a meeting beyond January 11 and you would like me to speak, please let me know in advance.

I am a Professor of Systems Management. I integrate uncertain information from complex sciences to develop management systems that can effectively operate NOW, without waiting years for better results of the science.

I own my home in Monterey County and I hate to see PG$E attempt to fool the representatives of our county in a way that the tobacco industry did for most of a century.

Can you imagine cigarette smoking being mandatory for everyone in the home, including the youngest of children, as PG&E Corporate is attempting with Wireless meters?

Please confirm that you have received this email communication.

Thanks for the service that you give to our community.
Give care, glen

Professor Glen Chase
glenchase@aol.com

PS: Here are a few short Videos helping to visualize some of the information above:

1. Insurance Companies Won't Insure Wireless Devices due to Health Risks (3 minutes, 13 seconds)
http://eon3emfblog.net/?p=382

2. Radiation Measured From Smart Meter Mounted On A Home (6 minutes, 21 seconds)
http://www.youtube.com/watch?v=uRejDxBE6OE

3. Senator Florez Meeting - Skyrocketing Utility Bills after Wireless smart meter installation (3 minutes, 19 seconds)
http://www.bakersfieldnow.com/news/63581287.html?tab=video

Here is a longer Video, extremely informative and valuable information from Top Scientists with highest level of integrity.

4. In Depth Videos: World Renowned Scientists At The Commonwealth Club, Nov 18 2010, San Francisco. (15 minutes each)
http://electromagnetichealth.org/electromagnetic-health-blog/cc-video/

Attachment on file with the Clerk

#38
1-11-11

From: marina meadows [marinameadows@comcast.net]
Sent: Monday, January 10, 2011 8:16 PM
To: 112-Clerk of the Board Everyone
Subject: Smart Meters and the Sage Report

Importance: High

Attachments: Smart_Meter_Report.docx

Smart_Meter_Repo
rt.docx (89 KB...

Dear Supervisors,

We are very unhappy with Dr. Hugh Stallworth's recommendation that you accept Smart Meters into Monterey County.

Please read and study the Sage Report we are attaching.

Many salient points are being missed; much disinformation is being disseminated by PG&E.

Too many issues are unaddressed.

Please take Item #38 off your agenda.

Please revisit this very grave concern of many Monterey County residents.

(We need a town hall meeting to discuss.)

Something big is missing here...and it is the TRUTH.

We do not want Smart Meters on our homes and businesses!

They are unsafe, dangerous, invasive, expensive and unhealthy!

Thank you for thinking seriously about this issue and not going along with the Agenda 21 program.

Sincere Regards,

The Cecils

#38
1-11-11

From: S. Jack Lewtschuk [blacklion@royal.net]
Sent: Tuesday, January 11, 2011 9:55 AM
To: 112-Clerk of the Board Everyone
Subject: New meters

PG&E arrived at my home to install the new meters unannounced. Apparently they could not get to the wall due to vegetation.

Instead of knocking at my door (I was at home all day) and tell me that they are just outside and have a problem, they left.

A few days later, I received a call from PG&E.

I think that courtesy would dictate that a homeowner needs to be notified when any work is to be done on his/her property.

Also, I am not yet persuaded that these meters are safe and/or accurate.

S. Jack Lewtschuk

blacklion@royal.net

#38

1-11-11

From: Chappell, Lori A. on behalf of 100-District 4 (831) 883-7570
Sent: Tuesday, January 11, 2011 1:30 PM
To: 112-Clerk of the Board Everyone
Subject: FW: Smart Meter report, #38 consent agenda
Follow Up Flag: Follow up
Flag Status: Green
Attachments: Marin Ordinance 3552.pdf; CPUC -- m EMFSN rehearing app..pdf; Cindy Sage declaration - Jan 4, 2011.doc; Cindy Sage -- Smart Meter Report Jan, 2011.doc; Structure Group-Bakersfield article 4-10.doc; Structure Group Report excerpt wo PG.doc

Sincerely,
Lori

.....Happy New Years.....

Lori Chappell
Office Manager I Supervisor Jane Parker
County of Monterey I Fourth District- Main Coastal Office
2616 1st Avenue, Marina CA 93933 I (831) 883-7571 phone
chappellla@co.monterey.ca.us I www.janeparker.org
be green. think before you print.

-----Original Message-----
From: nbeety@netzero.net [mailto:nbeety@netzero.net]
Sent: Monday, January 10, 2011 9:11 PM
To: 100-District 1 (831) 647-7991; 100-District 2 (831) 755-5022; 100-District 3 (831) 385-8333; 100-District 4 (831) 883-7570; 100-District 5 (831) 647-7755
Cc: nbeety@netzero.net
Subject: Smart Meter report, #38 consent agenda

January 10, 2011

Re: Consent Agenda Item #38: Health Department Report on PG&E Smart Meters

To the Monterey County Board of Supervisors:

Last Tuesday, Marin County Board of Supervisors passed an urgency ordinance halting the installation of Smart Meters and infrastructure in the county. The ordinance is attached.

Tomorrow, the Santa Cruz Board of Supervisors will vote on an urgency ordinance, introduced by two supervisors, which renews and strengthens the moratorium on Smart Meters and infrastructure they had in place until Dec. 31. Also tomorrow, Lake County Board of Supervisors will be discussing a request for a moratorium on Smart Meters. San Luis Obispo County will be taking up this issue at a future meeting; a supervisor at the last meeting stated that his PG&E bill doubled after a Smart Meter was installed.

I request that you reject the Health Department report on Smart Meters.

Since June, I have presented the Monterey County Board of Supervisors and the Health Department with substantial and ongoing information and documentation concerning the many problems with Smart Meters, including but not limited to the RF safety issues.

However, after an almost 5 month official investigation, the conclusion of the Health Department appears to bypass all this information in favor of information from PG&E.

I think there is some confusion. PG&E is a for-profit commercial entity. It is not a public agency in any way. It sells products – electricity and natural gas – to the public.

In addition, PG&E is a company with a very checkered history on safety, honesty, and admission of responsibility.

As I stated in a previous letter, the Division of Ratepayer Advocates called PG&E information regarding safety evidence about RF emissions and the safety of Smart Meters "weak", "unreliable", "disputed", and "inadequate". The DRA said: "The Commission should. . . give serious consideration to investigating the health concerns raised by (EMF Safety) Network and other groups." I've attached the application for rehearing filed by EMF Safety Network.

Regarding the Monterey County Health Department report:
These meters are one million microwatt meters, with a range that can exceed two miles, and Silver Spring claims that their signal can go through mountains (yet PG&E claims they can't be felt inside a house). I have sent you and the Health Department charts showing just how potent tiny fractions of one microwatt can be.

Furthermore, PG&E has not disclosed the normal strength of the peak power pulses emitted by its Smart Meters. However, PG&E representatives have said, we all use the same meters, and Southern California Edison has disclosed that the normal strength of the peak pulse is 155,600 microwatts. Cell phones do not emit bursts of 155,600 microwatts, nor do they emit around the clock, 7 days a week. Furthermore, PG&E's figures are time-averaged, not actual numbers, and are for one meter in isolation, not in a mesh network relaying off each other or part of a bank of meters.

The FCC

- has exposure guidelines – voluntary; it does not have safety standards or limits,
- aggressively promotes the industry it is entrusted with regulating,
- has repeatedly been urged to revise guidelines because of their inadequacy, by agencies such as the EPA, public advocacy groups, and the public, and
- has guidelines that are far more lax than other countries; in some, these Smart Meters would be illegal, even on the basis of Richard Tell's time-averaged figures.

However, the brand new report by Cindy Sage, which is attached, shows that Smart Meters can even exceed FCC guidelines.

I have requested from the Health Department the list of scientists with whom they discussed Smart Meters and a list of literature reviewed to come to their conclusion. What I have received so far is a letter from Michael Herz, PG&E's EMF Program, with statements from the World Health Organization.

PG&E frequently cites the World Health Organization. I sent the Health Department evidence of World Health Organization conflicts-of-interest due to industry involvement in creating their recommendations. I would be happy to send you and them more information.
The World Health Organization

- was chastised by the medical journal Lancet for routinely neglecting evidence, and
- their EMF Task Force
    - was funded in part by telecommunications contributions; contributions by the utility companies, if any, and the total extent of industry contributions are unknown, because they won't open the books,
    - was chaired by an industry consultant, Michael Repacholi, and
    - his assistant was an employee of the industry's Electric Power Research Institute. Her name: Leeka Kheifets. There is an extensive history on her conflicts of interests working for EPRI, ICNIRP (another international advisory group), PG&E, and the CPUC (during which time she requested her financial records be sealed). She is also a professor at UCLA.
    - had consultations and assistance from industry in drafting and finalizing recommendations for the public.

I requested that County Health Department staff attend the Commonwealth Club forum in November on "Health Effects of Electromagnetic Fields" with international scientists presenting data. Did anyone from the county attend?

As regards the Structure Group report, there are serious questions about the Structure Group's independence and the accuracy of the report. Attached is an article from the Bakersfield Californian, as well as an excerpt from their report.

PG&E "information" meetings to "educate" and "assure concerned citizens" are sales pitches; they are not information from an independent public advocacy group. The information PG&E provides, either through their "information" meetings or in print, may be true or it may not be, and must be evaluated carefully. As with anything for sale, it is a case of "buyer beware."

Why are they so intent on rolling out the Smart Grid and Meters over vocal and growing opposition and the substantial problems?

It appears that PG&E and other utility companies will make a great deal of money on other uses for their Smart Meters and Smart Grid, including city-wide Wi-Fi. This is showing up in a myriad of newspaper accounts across the country. Last weekend in Las Vegas was a summit at the Consumer Electronics Show to discuss Smart Grid "opportunities." These meters will not just be firing with energy data. Electric and gas income will probably be incidental compared to the sums they will earn in leasing out the network, rendering all their statistics about transmit times a complete fiction.

This is a huge gamble, because the public might catch on. PG&E is working faster and faster to stay ahead of the growing uproar.

What did Watsonville, Fairfax, and Santa Cruz and Marin Counties do? They adopted ordinances halting these meters and their infrastructure.

Again, I request that you reject this report from the Health Department. And I further request that you agendize consideration of an urgency ordinance at the very earliest date possible that not only halts the installation of Smart Meters and their infrastructure, but also deactivates already installed Smart Meters and infrastructure.

Sincerely,

Nina Beety
277 Mar Vista Dr.
Monterey, CA 93940
nbeety@netzero.net

Attached:
Marin County Smart Meter ordinance
EMF Safety Network Application for Rehearing to the CPUC
Cindy Sage Declaration and Report (charts at http://sagereports.com/smart-meter-rf/)
Bakersfield Californian article on Structure Group
Structure Group Report excerpt

ORDINANCE NO. 3552
AN UNCODIFIED ORDINANCE OF THE BOARD OF SUPERVISORS OF THE COUNTY OF MARIN ADOPTED AS AN URGENCY MEASURE IMPOSING A TEMPORARY MORATORIUM ON THE INSTALLATION OF SMARTMETERS AND RELATED EQUIPMENT IN, ALONG, ACROSS, UPON, UNDER AND OVER THE PUBLIC STREETS AND OTHER PLACES WITHIN THE UNINCORPORATED AREA OF MARIN COUNTY

THE BOARD OF SUPERVISORS OF THE COUNTY OF MARIN FIND AS FOLLOWS:

WHEREAS, the County of Marin (the "County"), through its police powers granted by Article XI of the California Constitution, retains broad discretion to legislate for public purposes and for the general welfare, including but not limited to matters of public health, safety and consumer protection; and

WHEREAS, the County of Marin has a franchise agreement with PG&E that has been in effect since the early 1950's; and

WHEREAS, in addition, the County retains authority under Article XII, Section 8 of the Constitution to grant franchises for public utilities, and pursuant to California Public Utilities Code section 6203, "may in such a franchise impose such other and additional terms and conditions..., whether governmental or contractual in character, as in the judgment of the legislative body are to the public interest;" and

WHEREAS, Public Utilities Code section 2902 reserves the County's right to supervise and regulate public utilities in matters affecting the health, convenience and safety of the general public, such as the use and repair of public streets by any public utility, the location of the poles, wires, mains, or conduits of any public utility, on, under, or above any public streets, and the speed of common - carriers operating within the limits of the municipal corporation;" and

WHEREAS, Pacific Gas & Electric Company ("PG&E") is now installing SmartMeters in Central and Northern California and is installing these meters within the County of Marin; and

WHEREAS, concerns about the impact and accuracy of SmartMeters have been raised nationwide, leading the Maryland Public Service Commission to deny permission on June 21, 2010 for the deployment of SmartMeters in that state. The State of Hawaii Public Utility Commission also recently declined to adopt a smart grid system in that state. The CPUC recently had before it a petition from the City and County of San Francisco, and other municipalities, seeking to delay the implementation of SmartMeters until the questions about their accuracy can be evaluated; and

WHEREAS, major problems and deficiencies with SmartMeters in California have been brought to the attention of the Board of Supervisors of the County of Marin, including PG&E's confirmation that SmartMeters have provided incorrect readings costing ratepayers untold thousands of dollars in overcharges and PG&E's records outlined "risks" and "issues" including an ongoing inability to recover real-time data because of faulty hardware originating with PG&E vendors; and

WHEREAS, the ebb and flow of gas and electricity into homes discloses detailed information about private details of daily life. Energy usage data, measured moment by moment, allows the reconstruction of a household's activities: when people wake up, when they

come home, when they go on vacation, and even when they take a hot bath. SmartMeters represent a new form of technology that relays detailed hitherto confidential information reflecting the times and amounts of the use of electrical power without adequately protecting that data from being accessed by unauthorized persons or entities and as such pose an unreasonable intrusion of utility customers' privacy rights and security interests. Indeed., the fact that the CPUC has not established safeguards for privacy in its regulatory approvals may violate the principles set forth by the U.S. Supreme Court in Kyllo v. United States (2001), 533 U.S. 27; and

WHEREAS, there is now evidence showing that problems with SmartMeters could adversely impact the amateur radio communication network that operates throughout California and neighboring states, as well as other radio emergency communication systems that serve first responders, government agencies, and the public; and

WHEREAS, significant health questions have been raised concerning the increased electromagnetic frequency radiation (EMF) emitted by the wireless technology in SmartMeters, which will be in every house, apartment and business, thereby adding additional man-made EMF to our environment around the clock to the already existing EMF from utility poles, individual meters and telephone poles; and

WHEREAS, FCC safety standards do not exist for chronic long-term exposure to EMF or from multiple sources, and reported adverse health effects from electromagnetic pollution include sleep disorders, irritability, short term memory loss, headaches, anxiety, nausea, DNA breaks, abnormal cell growth, cancer, premature aging, etc. Because of untested technology, international scientists, environmental agencies, advocacy groups and doctors are calling for the use of caution in wireless technologies; and

WHEREAS, the primary justification given for the SmartMeters program is the assertion that it will encourage customers to move some of their electricity usage from daytime to evening hours; however, PG&E has conducted no actual pilot projects to determine whether this assumption is in fact correct. Non-transmitting time-of-day meters are already available for customers who desire them, and enhanced customer education is a viable non-technological alternative to encourage electricity use timeshifting. Further, some engineers and energy conservation experts believe that the SmartMeters program -- in totality -- could well actually increase total electricity consumption and therefore the carbon footprint; and

WHEREAS, Assembly member Jared Huffman has requested the California Council on Science and Technology to advise him on whether the Federal Communications Commission's standards for SmartMeters are sufficiently protective and assess whether additional technology-specific standards are needed for SmartMeters; and

WHEREAS, a response to Assembly member Huffman from the Council on Science and Technology is expected in the near future; and

WHEREAS, Assembly Member Huffman has also recently introduced legislation (AB 37) which would add a section to the Public Utilities Code to require the CPUC to identify alternative options for customers who do not wish to have a wireless SmartMeter installed and allow customers to opt-out of wireless SmartMeter installation, including removing existing SmartMeters where requested by the customer. Most importantly, the legislation would suspend deployment of SmartMeters until the CPUC meets the above requirements; and

WHEREAS, this Board of Supervisors has sent letters to the President of the CPUC on July 20, 2010 and again on October 26, 2010 asking that the CPUC suspend PG&E's authority to deploy SmartMeters or related equipment in Marin County until certain reports now in process have been completed and reviewed and considered, and certain other conditions have been met; and

WHEREAS, there has been no response to either of these letters; and

WHEREAS, because the potential risks to the health, safety and welfare of County residents are so great, the Board of Supervisors wishes to adopt a moratorium on the installation of SmartMeters and related equipment within the unincorporated area of the County of Marin. The moratorium period will allow the Council on Science and Technology and legislative process referenced above to be completed and for additional information to be collected and analyzed regarding potential problems with SmartMeters; and

WHEREAS, there is a current and immediate threat to public health, safety and welfare because, without this urgency ordinance, SmartMeters or supporting equipment will be installed or constructed or modified in the County without PG&E's complying with the CPUC process for consultation with the local jurisdiction, the County's Code requirements, and subjecting residents of Marin County to the privacy, security, health, accuracy and consumer fraud risks of the unproven SmartMeter technology; and

WHEREAS, the Board of Supervisors hereby finds that it can be seen with certainty that there is no possibility that the adoption and implementation of this Ordinance may have a significant effect on the environment. This Ordinance does not authorize construction or installation of any facilities and, in fact, imposes greater restrictions on such construction and installation in order to protect the public health, safety and general welfare. This Ordinance is therefore exempt from the environmental review requirements of the California Environmental Quality Act (CEQA) pursuant to Section 15061(b)(3) of Title 14 of the California Code of Regulations; and

WHEREAS, there is no feasible alternative to satisfactorily study the potential impact identified above as well or better with a less burdensome or restrictive effect than the adoption of this interim urgency moratorium ordinance; and

WHEREAS, based on the foregoing it is in the best interest of public health, safety and welfare to allow adequate study of the impacts resulting from the SmartMeter technology; therefore it is appropriate to adopt a temporary moratorium that would remain in effect from the date of its adoption until December 31, 2011, unless your Board acts to repeal it prior to that date.

NOW, THEREFORE, BE IT ORDAINED by the Board of Supervisors of the County of Marin as follows:

SECTION I

Moratorium. From and after the effective date of this Ordinance, no SmartMeter may be installed in or on any home, apartment, condominium or business of any type within the unincorporated area of the County of Marin, and no equipment related to SmartMeters may be installed in, on, under, or above any public street or public right of way within the unincorporated area of the County of Marin.

SECTION II

Violations of the Moratorium may be charged as infractions or misdemeanors as set forth in Section 1.04.270 of the Marin County Code. In addition, violations shall be deemed public nuisances, with enforcement by injunction or any other remedy authorized by law.

SECTION III

This Board of Supervisors finds and determines that: (a) there is a current and immediate threat to the public peace, health, or safety; (b) the moratorium must be imposed in order to protect and preserve the public interest, health, safety, comfort and convenience and to preserve the public welfare; and (c) it is necessary to preserve the public health and safety of all residents or landowners adjacent to such uses as are affected by this interim ordinance as well as to protect all of the citizens of Marin County by preserving and improving the aesthetic and economic conditions of the County.

SECTION IV

If any provision of this interim ordinance is held to be unconstitutional, it is the intent of the Board of Supervisors that such portions of such ordinance be severable from the remainder and the remainder be given full force and effect.

SECTION V

This interim ordinance is not subject to the California Environmental Quality Act (CEQA) pursuant to Section 15060(c) (2) — the activity will not result in a direct or reasonably foreseeable indirect physical change in the environment and Section 15060(c) (3) — the activity is not a project as defined in Section 15378 of the CEQA Guidelines, because it has no potential for resulting in physical change to the environment, directly or indirectly.

SECTION VI

Effective Dates. This ordinance shall take effect immediately based on the findings by the Board of Supervisors that this ordinance is necessary for the protection of the public health, safety, and general welfare. This ordinance shall be in full force and effect from the date of its adoption by the Board of Supervisors until December 31, 2011, at which time its terms and provisions shall expire and no longer remain in effect.

PASSED AND ADOPTED at a regular meeting of the Board of Supervisors of the County of Marin held on this 4th day of January 2011 by the following vote:

AYES: SUPERVISORS Judy Arnold, Charles McGlashan, Steve Kinsey, Susan Adams
NOES: NONE
ABSENT: SUPERVISOR Harold C. Brown, Jr.

PRESIDENT, BOARD OF SUPERVISORS

ATTEST:

CLERK

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of EMF Safety Network for Modification of D.06-07-027 and D.09-03-026.	Application 10-04-018 (Filed April 6, 2010)

APPLICATION OF EMF SAFETY NETWORK FOR REHEARING OF DECISION 10-12-001

January 5, 2011

Sandra Maurer, Founder
EMF Safety Network
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Sebastopol CA 95473
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APPLICATION OF EMF SAFETY NETWORK FOR REHEARING OF DECISION 10-12-001

1. Introduction and Summary

On December 2, 2010, the Commission signed Decision (D.) 10-12-001, which dismissed the application of EMF Safety Network (Network) for modification of D.06-07-027 and D.09-03-026, in which the Commission approved installation of Smart Meters by Pacific Gas and Electric Company (PG&E). The Commission mailed D.10-12-001 to parties of record on December 6, 2010.

Pursuant to Rule 16.1 of the Commission's Rules of Practice and Procedure[1], Network submits this application for rehearing of D.10-12-001. The due date for applications for rehearing is January 5, 2011. Network will file this pleading electronically on the due date.

The Commission has an obligation to ensure safe delivery of gas and electric service and has committed legal error by neglecting and deferring its utility regulation duties to the Federal Communications Commission (FCC). This Commission, not the FCC, mandated Smart Meters in the California. The Commission previously investigated the heath impacts of radio frequency radiation (RF) emissions. In D.95-11-017, the Commission recognized public perception of harm, warned that financial interests should not trump health impacts, and ordered follow-up workshops on the subject. The basis for these outcomes was the possibility that a public health hazard could exist.

In 2006 the Commission upheld a mandate to carry out no and low cost electromagnetic field (EMF) reduction measures. However, the Commission failed to follow its own precautionary mandate by allowing PG&E and other utilities throughout California to deploy RF Smart Meters.

The Commission's decision to dismiss Network's application relies heavily on

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[1] Rule 16.1 provides that an application for rehearing shall be filed within 30 days after the date the Commission mails the order or decision.

PG&E's unsubstantiated claim that the RF emissions 10 feet away from a Smart Meter are 1/6000 of the federal standard. Network asserts that a single RF number cannot adequately describe RF exposure, due to variations in duty cycles, reflections and number of meters in the vicinity. Network provides a declaration based on a study that includes evidence of violations of the FCC standard. Network further alleges that Smart Meters in the manner deployed violate one or more conditions for FCC compliance. Network provides a declaration supporting these assertions.

The mandatory installation of radiation-emitting Smart Meters violates basic rights granted by the State of California, overburdens utility easements and violates local laws. Network asserts its legal right to practice prudent avoidance of EMF and RF devices, which the State of California advocates.

Although Network does not believe or support PG&E's position that Smart Meters are "personal wireless service facilities", if the Commission agrees with PG&E than we submit that General Order 168, Rules Governing Telecommunications Consumer Protection, applies to Smart Meters. The Consumer Bill of Rights in General Order 168 require consumer choice of vendor, full product disclosure, privacy, accurate bills, and the right to safety and security of their persons and property. Network also refers to General Order 159A, which addresses construction rules for mobile service facilities.

The Commission has a civic responsibility to address serious allegations of public health, safety and environmental impacts from RF Smart Meters. The Commission should respond to requests for a Smart Meter moratorium submitted by thousands of people, including local jurisdictions. Considering the enormity of the RF project statewide, the Commission should not bury its head in the sand by rejecting Network's application. Dismissal of the application was a wrong that must be righted.

The Commission should reopen its review of Smart Meters, order an immediate moratorium on the deployment of Smart Meters, hold public evidentiary hearings, offer shielded wire alternatives or maintain existing electromechanical meters to ensure that the Smart Meter program is consistent with delivery of safe, gas and electric service. Network requests rehearing of its application for modification of D.06-07-027 and D.09-03-026.

Radiation Emissions from Smart Meters [1] to document radiofrequency radiation (RF) levels associated with wireless smart meters in various scenarios depicting common ways in which they are installed and operated.

5. The Report includes computer modeling of the range of possible smart meter RF levels that are occurring in the typical installation and operation of a single smart meter, and also multiple meters in California.

6. FCC compliance violations are likely to occur under normal conditions of installation and operation of smart meters and collector meters in California, because the public has access to smart meters installed on their homes.

7. In addition to exceeding FCC public safety limits under some conditions of installation and operation, smart meters can produce excessively elevated RF exposures, depending on where they are installed. RF levels are predicted to be substantially elevated within a few feet to within a few tens of feet from the meter(s).

9. RF levels associated with smart meters under some conditions of installation and operation will produce RF power density levels that exceed those reported in some scientific studies to result in adverse health impacts, including headache, sleep disruption, restlessness, tremor, cognitive impairment, tinnitus, increased cancer risk, and cardiac problems at distances less than 500 meters from cell antennas, or at levels over 0.1 microwatts per centimeter squared. [1.2.3.4.5.6]

10. Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

11. People who are afforded special protection under the federal Americans with Disabilities Act are not sufficiently acknowledged nor protected. People who have medical and/or metal implants or other conditions rendering them vulnerable to health risks at lower levels than FCC RF limits may be particularly at risk.

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[1] http://sagereports.com/smart-meter-rf/

2. Background

In D.10-12-001 the Commission granted the motion of PG&E to dismiss the application of the EMF Safety Network for modification of D.06-07-027 and D.09-03-026. The Decision Summary states that RF emissions from Smart Meters are 1/6000 of the Federal standard at 10 feet from a Smart Meter.[2] In its discussion the Commission deferred its responsibility to the FCC then concluded that it was not reasonable to reopen a review of Smart Meters based on alleged heath impacts.[3]

In the application, Network alleged that the RF from Smart Meters poses serious public health, safety and environmental impacts.[4] Network challenged PG&E's inconsistent and unreliable claims. Network stated it did not ask for regulation of RF by the Commission.[5] Network asked for an independently prepared RF Emissions Study; public hearings on RF health, environmental, and safety impacts; review of actual Smart Meter program performance; authorization for customers to opt out of Smart Meter installation; and an immediate moratorium on PG&E Smart Meters.[6] These requests and allegations of harm are backed by substantial peer-reviewed science, anecdotal evidence, and widespread community expressions of concern.

3. Standard of Review

Public Utilities Code Section 1757 provides that, when a court reviews the validity of a Commission decision, it considers, among other things, whether "the findings in the decision of the commission are not supported by substantial evidence in light of the whole record." Rule 16.1 of the Commission's Rules of Practice and Procedure directs applicants for rehearing to "set forth specifically the grounds on which the applicant considers the order or decision of the Commission to be unlawful or erroneous."

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[2] D.10-12-001, p. 1.

[3] D.10-12-001, pp. 9, 15.

[4] D.10-12-001, p. 14, Finding of Fact 1.

[5] D.10-12-001, p. 5.

[6] Application, p. 2.

4. Legal, Technical and Factual Errors

4.1 The Commission Has a Responsibility to Ensure and Protect Public Safety

The Commission has the primary authority and responsibility to protect the health and safety of California ratepayers by ensuring that gas and electric utility service is safe and reliable. See Public Utilities Code § 451[7], 761[8], 762[9], and 768[10].

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[7] § 451 (Just and reasonable charges; Service; Rules) provides in relevant part: "Every public utility shall furnish and maintain such adequate, efficient, just, and reasonable service, instrumentalities, equipment, and facilities, including telephone facilities, as defined in Section 54.1 of the Civil Code, as are necessary to promote the safety, health, comfort, and convenience of its patrons, employees, and the public. All rules made by a public utility affecting or pertaining to its charges or service to the public shall be just and reasonable."

[8] § 761 (Authority to regulate by order or rule following finding of unjust, unsafe, or inadequate practices; Requirement of compliance) provides: "Whenever the commission, after a hearing, finds that the rules, practices, equipment, appliances, facilities, or service of any public utility, or the methods of manufacture, distribution, transmission, storage, or supply employed by it, are unjust, unreasonable, **unsafe**, improper, inadequate, or insufficient, the commission shall determine and, by order or rule, fix the rules, practices, equipment, appliances, facilities, service, or methods to be observed, furnished, constructed, enforced, or employed. The commission shall prescribe rules for the performance of any service or the furnishing of any commodity of the character furnished or supplied by any public utility, and, on proper demand and tender of rates, such public utility shall furnish such commodity or render such service within the time and upon the conditions provided in such rules." (Emphasis added.)

[9] § 762 (Authority to require changes in physical property of public utilities) provides in relevant part: "Whenever the commission, after a hearing, finds that additions, extensions, repairs, or improvements to, or changes in, the existing plant, equipment, apparatus, facilities, or other physical property of any public utility or of any two or more public utilities ought reasonably to be made, or that new structures should be erected, **to promote the security or convenience of its employees or the public, or in any other way to secure adequate service or facilities,** the commission shall make and serve an order directing that such additions, extensions, repairs, improvements, or changes be made or such structures be erected in the manner and within the time specified in the order." (Emphasis added.)

[10] § 768 (Authority to direct use of safety devices) provides in relevant part: "The commission may, after a hearing, require every public utility to construct, maintain, and operate its line, plant, system, equipment, apparatus, tracks, and premises **in a manner so as to promote and safeguard the health and safety of its employees, passengers, customers, and the public."** (Emphasis added.)

4.2 The Commission Wrongly Defers to the FCC

The Commission commits legal error by deferring its responsibility for the deployment of Smart Meters to the FCC. The Decision defers to the FCC, stating, "The Commission generally does not delve into technical matters which fall within the expertise of another agency, in this case, the FCC."[11]

Commission President and Assigned Commissioner Michael Peevey clearly makes the case for deferral to the FCC in his statements regarding dismissal of Network's Application[12]. At the Commission's December 2 public meeting, Peevey stated, "I believe that relying on the FCC in this case is reasonable, prudent and fully consistent with our responsibilities to provide safe and reliable electric service to ratepayers. We're relying on the federal agency in this regard." Commissioner Peevey concluded his statements by telling the audience at the hearing, "You should take these concerns to the FCC, it's the proper body."

Although the Conclusions of Law in D.10-12-001[13] only mention reasonableness generally, Commissioner Peevey made it clear that deferring to the FCC was the primary reason for dismissal.

The Commission, not the FCC, mandated RF Smart Meters in California. It is the responsibility of the Commission to "serve the public interest by protecting consumers and ensuring the provision of safe, reliable utility service and infrastructure at reasonable rates, with a commitment to environmental enhancement and a healthy California economy."[14]

The Division of Ratepayers Advocates (DRA) concurs with Network about Commission responsibility, stating, "The FCC's authority to regulate RF emissions does not deprive this Commission of its authority under state law to ensure that the in-state

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[11] D10-12-001, p. 9, Section 4.3

[12] CPUC meeting Archive video http://www.californiaadmin.com/cpuc.shtml

[13] D.10-12-001, p. 15.

[14] CPUC home page: http://www.cpuc.ca.gov/puc/

utility infrastructure does not jeopardize public health and welfare. As the appellate courts have consistently recognized and recently reiterated, this Commission's authority in this area is very broad. See, e.g., *SDG&E v. Covalt* (1996), 13 Cal. 4th 893; *PG&E Corp. v. CPUC* (2004) 118 Cal. App. 4th 1174, 1198 (Section 701 of the Public Utilities Code 'allows the PUC to 'do all things ... necessary and convenient' in the exercise of its authority over public utilities whether or not 'specifically designated' in the Public Utilities Code. Where the authority sought is 'cognate and germane' to utility regulation, the PUC's authority under section 701 has been liberally construed [citations omitted].)"[15]

4.3 The Commission Has Previously Investigated EMF and RF Health Impacts

In 1991, Commission Order Instituting Investigation 91-01-012, the Statement of Scope includes, "With this order, the Commission begins an investigation of its potential role in mitigating possible health effects of electric and magnetic fields created by electric utility power systems, or in mitigating possible health effects from fields emitted by cellular radiotelephone towers."[16] This investigation led to a Commission mandate to adopt EMF reduction measures. (See Section 4.4 below.)

Decision 95-11-017, which followed the investigation, states, "This order addresses the cellular phase of our EMF investigation, which considers the Commission's role in mitigating health effects, if any, of RF radiation generated by cellular utilities within the Commission's jurisdiction. Article XII, Section 6 of the California Constitution empowers the Commission to establish rules for the utilities it regulates.[17] Public Utilities Code Sections 451 and 1002 require the Commission to consider the impact of utilities' services on the environment and human health and

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[15] DRA Comments p.4 http://docs.cpuc.ca.gov/efile/CM/126712.pdf

[16] http://www.cpuc.ca.gov/Environment/emf/emfopen.htm

[17] "The commission may fix rates, establish rules, examine records, issue subpenas, administer oaths, take testimony, punish for contempt, and prescribe a uniform system of accounts for all public utilities subject to its jurisdiction."

safety.[18] ... CACD [Commission Advisory and Compliance Division] shall hold informal cellular EMF and RF radiation workshops as additional health information becomes available and upon preparation of any updated EMF reports, and shall report the results of such workshops to the Commission through the resolution process.[19][20]

In D.95-11-017, Appendix A, Section C, Issues for Future Consideration, Issue #3, Public Perception of the Problem, states in part, "The economic considerations of this issue are significant. CACD raises the equally, if not more, important issue of health and safety of the public. Public Utilities Code Section 451 requires regulated utilities to furnish and maintain facilities as necessary to promote the health and safety of its patrons, employees and the public. Furthermore, Section 1002 requires the Commission, in granting any certificate, to consider the potential effects of the project on community values and on the environment. The Commission is clearly responsible for ensuring that the utilities it regulates are providing service and facilities that do not constitute a threat to the public or the environment. As mentioned earlier, the current research on the matter has left many questions unanswered and therefore difficult to conclude that a health and safety problem does or does not exist. Until clearer answers emerge, the Commission should consider the possibilities that a health hazard could exist and that careful monitoring as well as some interim measures would

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[18] PU Code Section 1002, "(a) The commission, as a basis for granting any certificate pursuant to Section 1001 shall give consideration to the following factors: (1) Community values.(2) Recreational and park areas.(3) Historical and aesthetic values. (4) Influence on environment, except that in the case of any line, plant, or system or extension thereof located in another state which will be subject to environmental impact review pursuant to the National Environmental Policy Act of 1969 (Chapter 55 (commencing with Section 4321) of Title 42 of the United States Code) or similar state laws in the other state, the commission shall not consider influence on the environment unless any emissions or discharges there from would have a significant influence on the environment of this state."

[19] D.95-11-017, Ordering Paragraph 2.

[20] D.95-11-017 is not directly available on the Commission's web site. See 1995 Cal. PUC LEXIS 842; 165 P.U.R.4th 403. The document can be found at the web address in footnote 16 herein.

be appropriate." The Commission explicitly adopted the language in this appendix.[21]

4.4 The Commission Has a Mandate to Reduce EMF

The California EMF Program Short Factsheet on EMF states, "In 1993, the California Public Utilities Commission (CPUC) authorized the state's investor-owned utilities to carry out 'no and low cost EMF avoidance and measures' in construction of new and upgraded utility projects." A report of the history behind this authorization states, "On January 15, 1991, the PUC began an investigation to consider the Commission's potential role in mitigating health effects, if any, of EMFs created by electric utility power lines and by cellular radiotelephone facilities."[22] In D.06-01-042, issued in 2006, the Commission again ordered electric utilities to implement low-cost/no-cost EMF mitigation measures, which affirmed the 1993 policy.[23] The Commission clearly recognized public concern and mandates EMF reduction measures in the State of California. The Commission should apply the same precautionary approach to Smart Meters.

4.5 Smart Meters Violate FCC Safety Regulations

PG&E has based its RF health and safety claims on their assertions that Smart Meters comply with all FCC regulations. In D.10-12-001 the Commission upheld – without question or investigation – PG&E's unproven claims. The Commission wrongly accepted PG&E's assessment of RF safety at ten feet from a single Smart Meter. Multiple factors affect RF exposure in the environment, including duty cycle, reflections and number of nearby meters. The "Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters"[24] demonstrates that RF levels transmitted by RF Smart Meters can violate FCC guidelines under normal conditions of installation and operation. See attached Declaration of Cynthia Sage.

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[21] D.95-11-017, Ordering Paragraph 1.

[22] Application, p. 8, footnote 7, citing PUC Actions Regarding EMFs; http://www.cpuc.ca.gov/PUC/energy/Environment/ElectroMagnetic+Fields/action

[23] D.06-01-042, p. 22, Ordering Paragraph 2.

[24] Sage Associates, 2011, http://sagereports.com/smart-meter-rf/

Furthermore, the FCC Grants of Equipment Authorization, which govern the rules upon which FCC compliance is based, warn that RF exposure compliance depends on specific conditions. As stated in Network's reply comments to the proposed decision that preceded D.10-12-001, Network further alleges that RF Smart Meters in the manner deployed by PG&E violate one or more conditions for FCC compliance.[25] See also attached Declaration of Sandi Maurer. The CPUC must ensure the utilities adhere to the necessary FCC conditions, within those Grants of Authorization.

4.6 The Commission Decision to Mandate Smart Meters Violates State and Local Laws

The mandatory installation of radiation-emitting Smart Meters violates basic rights granted by the State of California, overburdens utility easements and violates local laws. The California Constitution, Article 1, Declaration of Rights, Section 1 states, "All people are by nature free and independent and have inalienable rights. Among these are enjoying and defending life and liberty, acquiring, possessing, and protecting property, and pursuing and obtaining safety, happiness, and privacy." Mandatory installation of Smart Meters infringes on people's rights to protect their property, life and liberty. The radiation emitted by Smart Meters is an environmental toxin which infringes on people's rights to obtain safety. Existing utility franchise agreements generally lack specific provisions regarding RF emissions. PG&E's installation of Smart Meters and associated infrastructure goes far beyond the intentions of utility easements incorporated into most if not all franchise agreements. Furthermore, standard homeowner's insurance policies explicitly exclude RF damage from coverage, putting ratepayers at risk for hazards not contemplated in utility franchise agreements. PG&E's RF system violates at least one local wireless ordinance. For example, a City of Sebastopol wireless facility ordinance[26] requires that minor antennas cannot be installed within 10 feet of power lines, cannot be installed on wood structures, and are limited to

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[25] "Reply Comments of EMF Safety Network on Proposed Decision of ALJ Sullivan," November 22, 2010, pp. 1-3.

[26] Chapter 17, General Provisions Relating to Telecommunications Facility and Minor Antenna, Sections 17.100.010 (A) through (C).

six antennas in a single location. Smart Meters clearly contain minor antennas.

Network believes that EMF, and specifically RF emitted by Smart Meters, is a hazard to be avoided because it is dangerous. Network believes the forced installation of RF devices in our homes and cities is discrimination based on our beliefs and rights to practice prudent avoidance of EMF, which the State of California advocates. The California Constitution, Article 1, Declaration of Rights Section 4, states, "Free exercise and enjoyment of religion without discrimination or preference are guaranteed. This liberty of conscience does not excuse acts that are licentious or inconsistent with the peace or safety of the State. The Legislature shall make no law respecting an establishment of religion ...." One example of rights associated with personal beliefs is the right to refuse immunization of schoolchildren.[27]

4.7 General Order 168, Consumer Bill of Rights

In its motion to dismiss the application, PG&E asserted Federal preemption. PG&E implied that Smart Meters are personal wireless service facilities. PG&E quoted this language pertaining to preemption, "No state or local government or instrumentality thereof may regulate the placement, construction and modifications of personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the Commission's regulations concerning such emissions."[28]

Network disputes Federal preemption, and Network does not believe that Smart Meters are mobile services facilities. However, if the Commission accepts PG&E's

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[27] California Health and Safety Code, Section 120365. Immunization of a person shall not be required "for admission to a school or other institution ... if the parent or guardian or adult who has assumed responsibility for his or her care and custody in the case of a minor, or the person seeking admission if an emancipated minor, files with the governing authority a letter or affidavit stating that the immunization is contrary to his or her beliefs. However, whenever there is good cause to believe that the person has been exposed to one of the communicable diseases listed in subdivision (a) of Section 120325, that person may be temporarily excluded from the school or institution until the local health officer is satisfied that the person is no longer at risk of developing the disease."

[28] PGE Motion For Dismissal, p. 10, citing 47 U.S.C. §332 (c)(7)(b)(iv).

position that Smart Meters are mobile services facilities, then Network submits that the Commission's General Order 168,[29] which includes a Consumer Bill of Rights, should apply to Smart Meters. The Consumer Bill of Rights states, "The Commission declares that all consumers who interact with telecommunications providers must be afforded certain basic rights, and those rights shall be respected by the Commission-regulated providers with whom they do business." The Consumer Bill of Rights includes the following directives:

> *"Disclosure*: Consumers have a right to receive clear and complete information about rates, terms and conditions for available products and services, and to be charged only according to the rates, terms and conditions they have agreed to.
>
> *"Choice*: Consumers have a right to select their services and vendors, and to have those choices respected by the industry.
>
> "*Privacy*: Consumers have a right to personal privacy, to have protection from unauthorized use of their records and personal information, and to reject intrusive communications and technology.
>
> *"Public Participation and Enforcement:* Consumers have a right to participate in public policy proceedings, to be informed of their rights and what agencies enforce those rights, and to have effective recourse if their rights are violated.
>
> *"Accurate Bills and Redress*: Consumers have a right to accurate and understandable bills for products and services they authorize, and to fair, prompt and courteous redress for problems they encounter.
>
> *"Non-Discrimination*: Every consumer has the right to be treated equally to all other similarly-situated consumers, free of prejudice or disadvantage.
>
> *"Safety:* Consumers have a right to safety and security of their persons and property."

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[29] General Order 168, Rules Governing Telecommunications Consumer Protection.

4.8 General Order 159A, Mobile Services Facilities Rules

PG&E Smart meters use RF technology in a microwave radio system that widely exposes the public to an unprecedented increase in RF exposures. However, PG&E is not a registered telecommunications provider.

The Commission's General Order 159A outlines rules for construction of mobile radio services facilities in California. Network asserts that several of General Order 159A goals remain unaddressed by the Commission's decision to dismiss Network's application, including compliance with the California Environmental Quality Act (CEQA). General Order 159A requires that "affected citizens, organizations and local government are given reasonable notice and opportunity for input into the review process" and that "the public health, safety, welfare, and zoning concerns of local government are addressed." Network asserts that the Commission must address these considerations.

4.9 The Commission Must Address Serious Public Concerns

The Commission has received complaints from thousands of individual ratepayers and tens of city and county jurisdictions, including, but not limited to: the City and County of San Francisco; Santa Cruz County and Marin County Boards of Supervisors; Sonoma County Supervisors Efren Carrillo and Shirley Zane; the cities of Belvedere, Berkeley, Bolinas, Camp Meeker, Capitola, Cotati, Fairfax, Monte Sereno, Morro Bay, Novato, Piedmont, Richmond, Ross, San Anselmo, San Clemente, San Rafael, Santa Cruz, Sausalito, Scotts Valley, Sebastopol and Watsonville; the Peace and Freedom Party; the Marin Association of Realtors; and the Sonoma County Republican Central Committee. These organizations have called for a moratorium, a ban, the right to opt out, or are opposing Smart Meters.

Considering the serious and growing community concern over Smart Meter problems, including health, safety and environmental impacts from RF Smart Meters, Network believes the Commission has a civic obligation to investigate this issue in a public proceeding.

5. Conclusion

The Commission should reopen its review of Smart Meters, and provide relief to Network and other jurisdictions by ordering an immediate moratorium on the deployment of RF Smart Meters. The Commission should convene public evidentiary hearings on health, safety and environmental impacts, in order to provide ratepayers and interested parties an opportunity to ensure that Commission policies are consistent with delivery of safe gas and electric service.

* * *

Rule 16.4(b) requires that allegations of new facts must be supported by a declaration or affidavit. Network has researched FCC regulations and has reviewed PG&E's compliance with FCC conditions. The Declaration of Sandra Maurer asserts that FCC Grants of Equipment Authorization, which govern the rules upon which FCC compliance is based, warn that RF exposure compliance depends on specific conditions, and that PG&E Smart Meters violate one or more conditions for FCC compliance. The Declaration of Cynthia Sage summarizes a report titled "Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters," which demonstrates that RF levels transmitted by publicly accessible PG&E Smart Meters can violate FCC guidelines under normal conditions of installation and operation.

Dated January 5, 2011, at Sebastopol, California.

/s/

Sandra Maurer, Founder
EMF Safety Network
PO Box 1016
Sebastopol CA 95473
Tel. (707) 824-0824
sandi@emfsafetynetwork.org

Declaration of Sandra Maurer

I, Sandra Maurer, declare as follows:

1. I reside in Sebastopol, California. My mailing address is 200 Frankel Lane, Sebastopol, California 95472.

2. I am a residential electric and gas customer of Pacific Gas and Electric Company (PG&E). I am aware that PG&E is currently installing Advanced Metering Infrastructure gas and electric meters, known as Smart Meters, in Sonoma County and throughout PG&E's service territory.

3. I am the founder of the EMF Safety Network (Network), which is a coalition of PG&E ratepayers, business and property owners, and concerned citizens in Northern California who address health, environmental, and safety impacts associated with EMF and RF technologies.

4. In its filings in Application 10-04-018, PG&E based its radio frequency radiation (RF) safety claims on their assertions that Smart Meters comply with all Federal Communications Commission (FCC) regulations. California Public Utilities Commission Decision 10-12-001 relied on PG&E's unproven claims in its dismissal of Network's application.

5. FCC Grants of Equipment Authorization, which govern the rules upon which FCC compliance is based, warns that RF exposure compliance depends on specific conditions.

6. Network has researched FCC conditions for the following meters that PG&E is deploying: FCC ID numbers OWS-NIC514, OWS-NIC507, and LLB6327PWM.

7. Network believes that PG&E Smart Meters violate one or more FCC conditions that determine RF exposure compliance. The conditions include one or more of the following, depending on the specific make and model of Smart Meter:

- limited single module approval requires professional installation;
- antenna(s) must provide a separation distance of at least 20 centimeters (cm) from all persons;

- antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter;
- end-users and installers must be provided with antenna installation and transmitter operating conditions to satisfy RF exposure compliance.

8. I doubt that several weeks of installer training qualifies PG&E installers as "professionals" and also doubts that Smart Meter installers are given accurate information about RF operating conditions.

9. Many PG&E Smart Meters are installed within 20 cm of public access. In some cases the meters are installed inside homes and businesses. In many situations Smart Meters are easily accessible to the public.

10. PG&E Smart Meters are widely co-located in banks of multiple meters. Co-location also occurs within Smart Meters because electric Smart Meters include at least two internal RF antennas. One antenna is used for the mesh network system and the other is for Home Area Network (HAN) systems. Antennas are designed to work in conjunction with HAN and RF appliances and with other Smart Meters in a mesh network.

11. Antennas have separate Grants of Equipment Authorization, which suggests that manufacturers have tested antennas in isolation and individually, and not in combination, which is how the Smart Meter and the Smart Grid system were designed to operate.

12. Network believes that "end users" are utility customers. PG&E has not provided end users with antenna installation and transmitter operating conditions to satisfy RF exposure compliance. FCC conditions that specify that end users are to have no manual instructions to remove or install the device confirm Network's belief that the end user is the customer.

13. Research into other Smart Meter Grants of Equipment Authorizations indicates there are similar violations in other utility districts in California.

Under penalty of perjury, I declare that the facts set forth above are true and correct to the best of my knowledge.

Dated January 5, 2011, at Sebastopol, California.

/s/

Sandra Maurer

Declaration of Cynthia Sage, Sage Associates

I, Cynthia Sage, declare as follows:

1. My name is Cynthia Sage. I am the owner of Sage Associates, an environmental consulting firm. My business address is 1396 Danielson Road, Montecito, California, 93108. I am providing this declaration in support of Application 10-04-018.

2. I have been a professional environmental consultant since 1972. I hold an M.A. degree in Geology, and a B.A. in Biology (Zoology) from the University of California, Santa Barbara. I am a Senior Fellow, Department of Oncology, School of Health and Medical Sciences, Örebro University, Örebro, Sweden (2008-2011).

3. I served as a member of the California Public Utilities Commission (CPUC) EMF Consensus Group (1990-1991), the Keystone Center Dialogue for Transmission Line Siting (a national group developing EMF Policy 1991-1992), and the International Electric Transmission Perception Project. Between 1977 and 1981, I served as a member of the California Board of Registration for Professional Engineers (Department of Consumer Affairs). I am a full member of the Bioelectromagnetics Society. I am the co-editor of the BioInitiative Report, and a founding member of the BioInitiative Working Group, an international scientific and public health research collaboration. I was a Lecturer in the Environmental Studies Program, University of California, Santa Barbara and a founding member of that program, and developed and taught classes in environmental impact assessment from 1972 – 1981.

4. My professional involvement in this area includes constraint analysis, environmental planning, and impact assessment on EMF and radiofrequency radiation siting issues for more than 30 years. My company has provided professional consulting services to city and county planners, private developers, state and federal agencies and schools with respect to measurement and assessment of EMF as a part of land planning and environmental constraints analysis since 1972. I have been an expert witness who testified on EMF computer modeling, impacts on people and property, EMF policy, public perception, visual impairment and land use issues, and have qualified both in state and in federal court proceedings as an expert witness in this area.

5. Sage Associates has prepared the report "Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters" (http://sagereports.com/smart-meter-rf/) to document radiofrequency radiation (RF) levels associated with wireless Smart Meters in various scenarios depicting common ways in which they are installed and operated.

6. The report includes computer modeling of the range of possible smart meter RF levels that are occurring in the typical installation and operation of a single Smart Meter, and also multiple meters in California.

7. FCC compliance violations are likely to occur under normal conditions of installation and operation of smart meters and collector meters in California, because the public has access to Smart Meters installed on their homes.

8. In addition to exceeding FCC public safety limits under some conditions of installation and operation, Smart Meters can produce excessively elevated RF exposures, depending on where they are installed. RF levels are predicted to be substantially elevated within a few feet to within a few tens of feet from the meter(s).

9. RF levels associated with Smart Meters under some conditions of installation and operation will produce RF power density levels that exceed those reported in some scientific studies to result in adverse health impacts, including headache, sleep disruption, restlessness, tremor, cognitive impairment, tinnitus, increased cancer risk, and cardiac problems at distances less than 500 meters from cell antennas, or at levels over 0.1 microwatts per centimeter squared. [1.2.3.4.5.6]

10. Consumers may also have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices (cell and cordless phones), PDAs like BlackBerry and iPhones, wireless routers for wireless internet access, wireless home security systems, wireless baby surveillance (baby monitors), and other emerging wireless applications.

11. People who are afforded special protection under the federal Americans with Disabilities Act are not sufficiently acknowledged nor protected. People who have medical and/or metal implants or other conditions rendering them vulnerable to health

risks at lower levels than FCC RF limits may be particularly at risk.

12. Neither the FCC, the CPUC, the utility nor the consumer know what portion of the allowable public safety limit is already being used up or pre-empted by RF from other sources already present in the particular location a smart meter may be installed and operated.

13. Consumers, for whatever personal reason, choice or necessity who have already eliminated all possible wireless exposures from their property and lives, may now face excessively high RF exposures in their homes from smart meters on a 24-hour basis. This may force limitations on use of their otherwise occupied space, depending on how the meter is located, building materials in the structure, and how it is furnished.

14. In summary, no positive assertion of safety can be made by the FCC, nor relied upon by the CPUC, with respect to pulsed RF when exposures are chronic and occur in the general population. [3.5.6] Indiscriminate exposure to environmentally ubiquitous pulsed RF from the rollout of millions of new RF sources (smart meters) will mean far greater general population exposures, and potential health consequences. Uncertainties about the existing RF environment (how much RF exposure already exists), what kind of interior reflective environments exist (reflection factor), how interior space is utilized near walls), and other characteristics of residents (age, medical condition, medical implants, relative health, reliance on critical care equipment that may be subject to electronic interference, etc.) and unrestrained access to areas of property where meter is located all argue for caution.

1. Khurana VG Hardell L Everaert J Bortkiewicz A Carlberg M Ahonen M, 2010. Epidemiological Evidence for a Health Risk from Mobile Phone Base Stations. Int Journal of Occupational Environmental Health 2010;16:263–267.

2. Kundi M Hutter HP Mobile phone base stations—Effects on wellbeing and health. Pathophysiology 16 (2009) 123–135.

3. Sage C. Carpenter DO. 2009. Public Health Implications of Wireless Technologies. Pathophysiology 16 (2009) 233–246.

4. Hardell L Sage C. Biological effect from electromagnetic field exposure and public exposure standards. Biomedicine & Pharmacotherapy 2008;62:104-109. doi:10.1016/j.bipha.2007.12.004.

5. BioInitiative Working Group, Cindy Sage and David O. Carpenter, Editors. BioInitiative Report: A Rationale for a Biologically-based Public Exposure Standard for Electromagnetic Fields (ELF and RF) at www.bioinitiative.org, August 31, 2007.

6. Carpenter DO Sage CL. 2008. Setting Prudent Public Health Policy for Electromagnetic Field Exposures. Reviews on Environmental Health 23(2) 91-117.

Under penalty of perjury, I declare that the facts set forth above are true and correct to the best of my knowledge.

Dated January 5, 2011, at Santa Barbara, California.

/s/ _____

Cynthia Sage

VERIFICATION

I, Sandra Maurer, represent EMF Safety Network and am authorized to make this verification on the organization's behalf. The statements in the foregoing document are true to the best of my knowledge, except for those matters that are stated on information and belief, and as to those matters I believe them to be true.

I declare under penalty of perjury that the foregoing is true and correct.

Dated January 5, 2011, at Sebastopol, California.

/s/

Sandra Maurer, Founder
EMF Safety Network
PO Box 1016
Sebastopol CA 95473
Tel. (707) 824-0824
sandi@emfsafetynetwork.org

CERTIFICATE OF SERVICE

I certify that I have by electronic mail this day served a true copy of the original attached "Application of EMF Safety Network for Rehearing of Decision 10-12-001" on all parties of record in A.10-04-018 or their attorneys of record. I will mail paper copies of the pleading to Assigned Commissioner Michael Peevey and Administrative Law Judge Timothy Sullivan.

Dated January 5, 2011, at Sebastopol, California.

/s/ _____

Sandra Maurer