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**BEFORE THE PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Application of Pacific Gas and Electric Company for Approval of Modifications to its SmartMeter™ Program and Increased Revenue Requirements to Recover the Costs of the Modifications. (U39M).

Application 11-03-014  
(Filed March 24, 2011)

And Related Matters.

Application 11-03-015  
Application 11-07-020

**EMF SAFETY NETWORK OPENING BRIEF**

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## EMF SAFETY NETWORK OPENING BRIEF

### 1. Introduction and Summary

Pursuant to Rule 13.11 of the Commission's Rules of Practice and Procedure, the EMF Safety Network (Network) submits this opening brief in response to "Assigned Commissioner's Ruling Amending Scope of Proceeding to Add a Second Phase" dated June 8, 2012. Commissioner Peevey requested parties brief five issues, including citing applicable legal authority, related to opt-out fees, the Americans with Disabilities Act (ADA), Public Utilities Code section 453(b), and community wide opt-out.<sup>1</sup> Network will initially address the first two questions.

Section 453(b) prohibits charging different rates to utility customers for medical conditions, and Government Code section 11135 prohibits discrimination on the basis of any mental or physical disability. At a minimum, under California law charging a fee to certain customers could violate the statute if their reason for opting out is related to a medical condition. For those whose opting out is, in fact, required for medical reasons, the obligation to pay opt-out fees is impermissibly discriminatory.

Electrosensitivity (ES) is recognized by the State of California, and avoidance of electromagnetic fields (EMF), is a practice the State of California and the Federal government encourage. Poki Stewart Namkung, M.D. M.P.H, Santa Cruz County public health officer recognizes that exposure is additive. Considering the ubiquitous nature of wireless exposure in our current society, everyone is susceptible to becoming ES.

Numerous customers have suffered health and other safety impacts since the installation of Smart Meters<sup>2</sup>. These medical conditions include: headaches, tinnitus, insomnia, dizziness, nausea, pain, muscle cramps, heart problems, and more. *Most people would never suspect that a utility meter could cause physical suffering!*

A person with ES could be considered to have a disability under the ADA if the impairment substantially limits one or more major life activities. In Sweden, ES is

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<sup>1</sup>A. 11-03-014 et al. "Assigned Commissioner's Ruling Amending Scope of Proceeding to Add a Second Phase" pp 5-6.

<sup>2</sup> California utility customers have submitted declarations to Network on how Smart Meters have caused medical conditions. In order to ensure timely re-filing the declarations have been removed from this pleading by order of the ALJ who stated they constitute out-of-record material. Network intends to protest the ALJ's order.

officially recognized as a functional impairment. In 2009 the European Parliament urged member states to follow Sweden's example to provide people with ES protection and equal opportunities. California's liberal policy regarding disability rights affords greater potential for protections than the ADA.

Smart Meters could cause interference with medical implants. To require payment to not have the Smart Meter on one's home to avoid medical conditions would also be a violation of Public Utilities Code section 453(b). Another consideration is banks of meters on or near a home. Customers should not have to pay fees for their neighbors' meters to be removed.

The Smart Meter system presents ADA issues related to public access as ADA Title III prohibits discrimination by public places and commercial facilities. A business could be a day care facility, a doctors office, a health food restaurant, a healing art business or a wellness clinic, places where people with disabilities or medical conditions could be prevented from working or accessing if Smart Meters are installed.

A further point to consider is how will the Commission determine if someone has medical conditions or a disability? The most manageable policy choice is simply to ban opt-out fees across the board.

Finally, cumulative exposure to radiation must be factored into exposure conditions. People should not be forced to pay a financial penalty for practicing prudent avoidance of Smart Meters.

## **2. Legal Consideration of Opt-Out Fees**

**Q. 1: Does an opt-out fee, which is assessed on every residential customer who elects to not have a wireless smart meter installed in his/her location, violate the Americans with Disabilities Act or Pub. Util. Code § 453(b)?**

**Q. 2: Do the Americans with Disabilities Act or Pub. Util. Code § 453(b) limit the Commission's ability to adopt opt-out fees for those residential customers who elect to have an analog meter for medical reasons?**

### **2.1 Section 453(b)**

Public Utility Code section 453(b) in part states: "No public utility shall prejudice, disadvantage, or require different rates or deposit amounts from a person because of ancestry, medical condition, marital status or change in marital status,

occupation, or any characteristic listed or defined in Section 11135 of the Government Code.” Government Code section 11135 prohibits discrimination on the basis of any mental or physical disability. In part, “physical disability” is defined as (1) [h]aving any physiological disease, disorder, condition, cosmetic disfigurement, or anatomical loss that does both of the following: (A) [a]ffects one or more of the following body systems: neurological, immunological, musculoskeletal, special sense organs, respiratory, including speech organs, cardiovascular, reproductive, digestive, genitourinary, hemic and lymphatic, skin, and endocrine. (B) [l]imits a major life activity.” (Gov. Code, § 12926(l).) “Limits” must be determined “without regard to mitigating measures such as medications, assistive devices, prosthetics, or reasonable accommodations, unless the mitigating measure itself limits a major life activity.” (*Id.*) In addition, “major life activities” must be broadly construed and includes physical, mental, and social activities and working. (*Id.*) As explained below numerous people have suffered symptoms affecting major life activities due to the effects of radio frequency radiation (RF) exposure from Smart Meters and are protected under Government Code section 11135. Thus, it would appear, at a minimum, that under California law charging a fee to certain customers could violate the statute if their reason for opting out is related to medical condition.

The Commission has recognized the broad scope of Section 453(b) and important protections it provides the disabled. *In the matter of San Jose Water Company* (2008) 2008 Cal. PUC LEXIS 372, Decision 08-40-018, the Commission recognized the broad scope of Section 453(b) in a facility access proceeding. It noted, “[r]equiring disabled persons to use the rear entrance, ring a bell for access and wait for an escort is inconvenient and possibly demeaning to the disabled public, and unreasonably disadvantages them. It is disruptive to employees’ normal work activities to serve as impromptu escorts, and is not an efficient use of utility personnel.”

The Commission has also determined that rate differentials must not be based on the classifications set forth in Section 453(b).<sup>3</sup> In this case, imposing fees on customers

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<sup>3</sup> *Maeder v. Pacific Bell*, 41 CPUC 2d 184, \_\_\_, n.7 (1991) [“It is perfectly valid for a utility to establish different classes of customers and to provide different rates and services to each, so long as the difference is reasonable (*PU Code § 453(c)*) and the basis for the classification is related to the nature of the service and not based on one of the criteria enumerated in *PU Code § 453(b)*.”]

opting out of Smart Meters due to a medical condition violates Section 453(b). As set forth below, numerous people have suffered symptoms affecting major life activities due to the effects of RF exposure. As set forth in *In the matter of San Jose Water Company*, accommodations for disabled persons must not “unreasonably disadvantage” them. Here, imposing an opt-out fee on someone who opts out for medical reasons is an unreasonable disadvantage. Accordingly, requiring customers seeking to mitigate RF emissions from Smart Meters for medical reasons to pay a fee for the privilege of doing so violates Section 453(b) and Government Code section 11135.

## **2.2 Electrosensitivity and Medical Conditions**

In order to maintain and protect their health, people who are electrically sensitive (ES), also known as electrosensitivity and electromagnetic hypersensitivity (EHS), practice prudent avoidance of electromagnetic fields (EMF), a practice the State of California and the Federal Government recognize and encourage.<sup>4</sup> This encouragement to reduce EMF exposures is not solely for the benefit of people with ES, but for all people to who want to protect their health. EMF as used in the broad sense can include RF, which Smart Meters emit.

In December 2011, Poki Stewart Namkung, M.D. M.P.H, Santa Cruz County public health officer, wrote in a report provided to the Santa Cruz County Board of Supervisors that exposure to RF “... *is additive and consumers may have already increased their exposures to radiofrequency radiation in the home through the voluntary use of wireless devices ...It would be impossible to know how close a consumer might be to their limit, making uncertainty with the installation of a mandatory SmartMeter.*”<sup>5</sup> Considering the ubiquitous nature of wireless exposure in our current society, everyone is susceptible to becoming ES.

Network has received many health complaints from California utility customers since the Smart Meters and related infrastructure have been deployed. Although some people were aware, others were unaware of ES prior to the installation of Smart Meters, and some have become ES as a result of Smart Meter exposure. *Most people would*

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<sup>4</sup> California Electric and Magnetic Fields Program Short Factsheet on EMF 1999 pp.3,4 <http://www.ehib.org/emf/shortfactsheet.PDF>

<sup>5</sup> Health Risks Associated with Smart Meters p. 3 <http://emfsafetynetwork.org/?p=6959>

*never suspect that a utility meter could cause physical suffering!* California utility customers declare to suffering health and other safety impacts since the installation of Smart Meters on their homes or in their communities. The following excerpts (see note 2, above) are a few examples of the medical conditions they suffer:

*“I am experiencing the following symptoms due to the radiation emitted from smart meters: headaches, tinnitus, insomnia, dizziness, nausea, vomiting, depression, and lethargy. My facial skin has also become extremely dry and rough, as if it has been burned...My daughter experiences the following symptoms due to smart meter radiation: chronic bloody noses and occasional headaches.”*

“I was unaware that a Smart Meter had been installed on our house, but I suddenly began having severe, debilitating headaches, joint and muscle pain, muscle cramping, elevated blood pressure, irregular heartbeat, insomnia, and an intermittent buzzing/tingling sensation in my legs and feet that happened every few seconds day and night, and I realized on checking with the electric company, that my symptoms began right after the Smart Meter was first installed. What further confirmed for me my suspicion that my symptoms were connected to the Smart Meter was the fact that my symptoms completely disappeared when I would go to stay a few days at my daughter’s house in Marin County...”

*“Since the installation of SmartMeters in our neighborhood, I have suffered with tinnitus, muscle cramps, sleep disturbance, chronic fatigue, heart palpitations, migraines, blurred vision, and dizziness...When I visit my father in Shasta County who lives in an area where there are no SmartMeters as yet, the tinnitus stops completely. I sleep well and feel much better.”*

“A Smart Meter was installed on my home over my objections in August 2010. At first I did not notice any ill effects, but over time symptoms began to accrue. By November 2011 I was suffering from insomnia, nosebleeds while sleeping, constant nausea, headaches, heart palpitations, fatigue, loss of balance, and depression. I called PG&E several times to request removal of the Smart Meter. They refused.”

Customers express concern for their health, the health of their children and for others welfare:



*“After 10-15 minutes of exposure to one “Smart Meter” from a distance of 6 feet, I began to experience heart palpitations and felt physical distress so that I had to quickly move away as I feared for my health, the condition of my heart and my very life.”*

“We fear for the stability of our daughter’s health. She is chemically sensitive, which means that her immune system is compromised. Believing, as many medical people do, that sensitivity is probably triggered by an event of overexposure, we do not want to risk another problem.”

*“My concerns for the Owner, the residents and my own family are Smart Meter-related fires, privacy invasion, expensive rates, over-billing, hacking of personal information, wiring overloads, dirty electricity, explosions and health impacts on all.”*

Some customers experience physical suffering, and worsening of health conditions even though they don’t have a Smart Meter on their home, but their neighborhood is deployed:

*“Since Smart Meters were installed in my neighborhood I have experienced worsened tinnitus and worsened insomnia.”*

“Since Smart Meters were installed in my neighborhood, my formerly very mild electrical sensitivity worsened significantly and rapidly. I experience insomnia, frequent headaches, worsened sinus disease, tinnitus, and such cognitive problems as poor short term memory, confusion, and disorganization”.

*“I do not have a Smart Meter on my home, but I am surrounded by Smart Meters on my neighbors homes...Since Smart Meters were installed in my neighborhood I have experienced constant tinnitus, something I did not have before the meters were installed. I have also experienced otherwise-unexplained sleep disturbances.”*

“Since the installation of my neighbors’ smart meters in mid-2011 (my wife and I opted out of the smart meter program, but we are still affected by the smart meters in our neighborhood) I have suffered from daily heart palpitations, dizziness, headaches, worsened tinnitus, insomnia, and fatigue...”

*“Since deployment of Smart Meters in my neighborhood in late August, 2010, my symptoms of electrosensitivity have worsened, and I have lost the use of portions of my home and property because I must avoid proximity to neighborhood wireless Smart Meters.”*

*“Since Smart Meters were installed in my neighborhood I have experienced worsened anxiety, terrible headaches, and heart palpitations.”*

Some customers have found the Smart Meter system intolerable and have relocated out of state.

*“The effects of the Smart Meter were so debilitating for me that I have relocated to North Carolina, to an area where there are no Smart Meters.”*

*“We have since abandoned our house and California all together and relocated to Ann Arbor, Michigan where, sadly, the meters are now on their way. We are preparing to run again once they get to our neighborhood.”*

These comments represent a small sample of the types of complaints Network has received. Since the Public Utilities Code 453(b) states that utilities cannot charge different rates based on medical conditions, the opt-out fees should be eliminated.

### **2.3. ES, Disability, and the ADA**

A person with ES could be considered to have a disability under ADA law if the impairment substantially limits one or more major life activities. The ADA addressed this issue for persons affected by chemical sensitivities and second hand cigarette smoke:

*“An individual’s major life activities of respiratory or neurological functioning may be substantially limited by allergies or sensitivity to a degree that he or she is a person with a disability. When a person has this type of disability, a covered entity may have to make reasonable modifications in its policies and practices for that person. However, this determination is an individual assessment and must be made on a case-by-case basis.”<sup>6</sup>*

The U.S. Access Board, a federal entity assisting in ADA implementation, has declared that: “[M]ultiple chemical sensitivities and electromagnetic sensitivities may be

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<sup>6</sup> Americans with Disabilities Act Title III Regulations Part 36 "Nondiscrimination on the Basis of Disability in Public Accommodations and Commercial Facilities"(as amended by the final rule published on September 15, 2010)  
[http://www.ada.gov/regs2010/titleIII\\_2010/titleIII\\_2010\\_regulations.htm#anchor3508](http://www.ada.gov/regs2010/titleIII_2010/titleIII_2010_regulations.htm#anchor3508)

considered disabilities under the ADA if they so severely impair the neurological, respiratory or other functions of an individual that it substantially limits one or more of the individual's major life activities.”<sup>7</sup>

In California, the ADA long has been treated as a floor rather than a ceiling of protection. For example, the Government Code at Section 12926.1 states:

(a) The law of this state in the area of *disabilities* provides protections independent from those in the federal Americans with *Disabilities* Act of 1990 (P.L. 101-336). Although the federal act provides a floor of protection, this state's law has always, even prior to passage of the federal act, afforded additional protections.

\* \* \*

(c) In addition, the Legislature has determined that the definitions of "physical disability" and "mental disability" under the law of this state require a "limitation" upon a major life activity, but do not require, as does the federal Americans with *Disabilities* Act of 1990, a "substantial limitation." This distinction is intended to result in broader coverage under the law of this state than under that federal act.

In Sweden, EHS is officially recognized as a functional impairment. The Swedish Association for the ElectroSensitive<sup>8</sup> is one of 43 recognized disability groups there.

*“In Sweden, impairments are viewed from the point of the environment. No human being is in itself impaired, there are instead shortcomings in the environment that cause the impairment (as the lack of ramps for the person in a wheelchair or rooms electro-sanitized for the person with electrohypersensitivity). This environment-related impairment view, furthermore, means that even though one does not have a scientifically based complete explanation for the impairment electrohypersensitivity, and in contrast to disagreements in the scientific society, the person with electrohypersensitivity shall always be met in a respectful way and with all necessary support with the goal to eliminate the impairment. This implies that the person with electrohypersensitivity shall have the opportunity to live and work in an electro-sanitized environment.”* Olle

<sup>7</sup> IEQ Indoor Environmental Quality; a project of the National Institute of Building Sciences (NIBS) with funding support from The Architectural and Transportation Barriers Compliance Board (Access Board) <http://access-board.gov/news/ieq.htm>. (emphasis supplied)

<sup>8</sup> <http://www.feb.se>

Johansson, Department of Neuroscience, Karolinska Institute, Stockholm, Sweden.<sup>9</sup>

In 2009 the European Parliament adopted a resolution on health concerns of EMF and urged “Member States to follow the example of Sweden and to recognise persons that suffer from electrohypersensitivity as being disabled so as to grant them adequate protection as well as equal opportunities”.<sup>10</sup>

Smart Meters, cell phones, cordless phones and other wireless devices emit RF which the World Health Organization's International Association for Research on Cancer has classified as a 2b carcinogen.<sup>11</sup> The Food and Drug Administration (FDA) advises people with medical implants (pacemakers, etc) that cell phones can cause interference with medical devices.<sup>12</sup> Smart Meters could also cause interference with medical implants. A Southern California Edison (SCE) customer declares,

*“I have a pacemaker and am sensitive to EMF and need to protect my health. There are Smart Meters and wireless devices surrounding my home at my neighbors homes. The electric stanchion is right outside my Master bedroom and bath where I spend, at least, ten hours a day.”... “I think it is an unfair penalty for any individual with a medical concern to pay to not have a Smart Meter in my home.”*

To require payment to not have the Smart Meter on one's home to avoid medical conditions would also be a violation of PUC code 453(b).

The Smart Meter system presents ADA issues related to public access as ADA Title III<sup>13</sup> prohibits discrimination by public places and commercial facilities. The wireless Smart Meter system operates in a mesh network transmitting millions of RF

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<sup>9</sup>Johansson, O. 2006. Electrohypersensitivity: State-of-the-Art of a Functional Impairment. *Electromagnetic Biology and Medicine*. December 2006; 25(4): 245-258.

<sup>10</sup> <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P6-TA-2009-0216+0+DOC+XML+V0//EN>

<sup>11</sup> IARC May 31, 2011 [http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208\\_E.pdf](http://www.iarc.fr/en/media-centre/pr/2011/pdfs/pr208_E.pdf)

<sup>12</sup> [Interference with Pacemakers and Other Medical Devices](http://www.fda.gov/RadiationEmittingProducts/RadiationEmittingProductsandProcedures/HomeBusinessandEntertainment/CellPhones/ucm116311.htm): Radiofrequency energy (RF) from cell phones can interact with some electronic devices. This type of interference is called electromagnetic interference (EMI)...” <http://www.fda.gov/RadiationEmittingProducts/RadiationEmittingProductsandProcedures/HomeBusinessandEntertainment/CellPhones/ucm116311.htm>

<sup>13</sup> “Title III covers businesses and nonprofit service providers that are public accommodations, privately operated entities offering certain types of courses and examinations, privately operated transportation, and commercial facilities.” [A Guide to Disability Rights](http://www.ada.gov/cguide.htm#anchor62335) <http://www.ada.gov/cguide.htm#anchor62335>

pulses per day in a community area fully deployed.<sup>14</sup> Smart Meters can transmit data between 1/10 of a mile to a mile or more per PG&E.<sup>15</sup> The mesh network, including Smart Meter infrastructure (data collectors and repeaters) affects the areas outside the home, which includes public sidewalks, and depending on the neighborhood may include stores, transportation, public parks, government offices, etc. Employers, employees and visitors to a business already are, or will be affected by the Smart Meter deployment. Decision 12-02-014 was silent on opt-out for commercial customers. A small business could be a day care facility, a doctors office, a health food restaurant, a healing art business or a wellness clinic, places where people with disabilities or medical conditions could be prevented from working or accessing if Smart Meters are installed.

The utilities are not peddling unnecessary junk, but are providing essential services, which are a life and death issue for people to keep warm in winter, for example. Some people who are disabled depend on life support and other medical equipment, and cannot simply 'choose' not to do business with the utility if they cannot afford the opt-out fee. It is discriminatory to the disabled and poor on fixed income to charge opt-out fees.

### **3. Equitable Considerations**

This year a California small claims court case was brought against SCE regarding a Smart Meter causing health problems for the utility customer. The plaintiff's attorney, Mr. Kyle both won the case on behalf of his wife as plaintiff, and prevailed against SCE on appeal and was awarded some expenses as well as the right to have the Smart Meter removed.<sup>16</sup>

Another consideration is customers with medical conditions, or who wish to avoid medical conditions who have other people's meters on their home. Even if they could afford to pay the fees for their meter, they shouldn't have to pay fees for their neighbors' meters. A mother living near a bank of ten Smart Meters comments,

*"The SCE Smart Meter Opt-Out Plan of April 2012 is only for single-metered homes, and provides no option for banks*

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<sup>14</sup> A. 11-03-014 [http://emfsafetynetwork.org/wp-content/uploads/2011/11/PGERFDataOpt-outalternatives\\_11-1-11-3pm.pdf](http://emfsafetynetwork.org/wp-content/uploads/2011/11/PGERFDataOpt-outalternatives_11-1-11-3pm.pdf) Table 2-1 p.5

<sup>15</sup> <http://emfsafetynetwork.org/wp-content/uploads/2010/03/SmartMeter-Questionsanswered.pdf>

<sup>16</sup> Superior Court of California, County of Orange, Case No. 30-011-00513876-SC-SC-CJC, entered on 2/21/12 by Judge David Chaffee.

*of meters where one single family is affected by 24/7 pulsing radiation from all neighbors' meters. As well, the high opt-out fees are not affordable: \$75 setup plus \$10/month = \$195 for the first year. In my case, I would have to absorb the opt-out cost (\$1,950) for all ten smart meters in order to protect my family from radiation."*

There will also be other reasons, besides medical, for which a customer will want to opt out and these considerations should be investigated. People have reported burned out appliances and fires concurrent with Smart Meter installation<sup>17</sup>.

*"The "Smart" meter caused damage to the electricity in my house: Many electric outlets stopped working and I wasn't able to heat my house adequately because appliances which use a lot of electricity would trip the circuit breaker. I put everything on circuit breaker strips as a safety measure, but the toaster oven wore out the circuit breaker strip that was brand new—it was literally "fried".*

A further point to consider is how will the Commission decide if someone has a medical condition and can opt out of Smart Meters for free, and someone who has to pay to opt out because they are avoiding medical conditions? Would the Commission require a doctor's note? For the disabled on a fixed income this presents another access barrier, as a doctors note would likely require considerable cost to obtain. It would also create considerable paper trail to manage and track doctors' notes for the thousands who are opting out of Smart Meters. The more manageable policy choice is simply to ban the opt-out fees across the board.

#### **4. Cumulative Exposure to RF Radiation**

Expanding on the comments of Dr. Namkung above, PG&E has acknowledged that the maximum permissible exposure (MPE) for radiation at its Smart Meter operating frequency of 900 MHz among the general population is 600 microwatts per square centimeter.<sup>18</sup> But the standard is incomplete without mentioning averaging time, which for general population exposures at 900 MHz is 30 minutes. This can be expressed as 600 microwatts times 30 minutes, or 18,000 microwatt-minutes per square centimeter.

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<sup>17</sup> [http://emfsafetynetwork.org/?page\\_id=1280](http://emfsafetynetwork.org/?page_id=1280)

<sup>18</sup> Declaration of Daniel Partridge, ¶ 7, appended to PG&E Motion for Immediate Dismissal, filed May 17, 2010, A10-04-018. The MPE is derived from safeguards on non-ionizing radiation promulgated by the Federal Communications Commission (FCC) at 47 CFR § 1.1310

Exposure of an hour (60 minutes) would mean that power density must decline to 300 microwatts over that period in order for the MPE limit to be maintained. (300 microwatts times 60 minutes = 18,000 microwatt-minutes). For eight hours, the power density, on average, must drop to 300 divided by 8, or 37.5 microwatts per square centimeter.<sup>19</sup>

General population exposures of eight hours to Smart Meter radiation is not a far-fetched scenario. Imagine, for example, a bed with its headboard against same wall, internally, as the Smart Meter is affixed to externally. If the bed were occupied by an ill resident, the exposure could extend well beyond the eight hours of night sleep.

Table 1 and Table 2 answer the questions, "What power densities might a person be exposed to by a Smart Meter and how does that exposure compare to a time-adjusted limit?"<sup>20</sup> The first table is "worst case" in that "Max EIRP" shows the highest power possible and "Max Environment" postulates continuous use. The second table adjusts for time of exposure relative to the 30 minutes in the FCC limit. Thus, Smart Meter 1 is adjusted from 600 to 6000 microwatts per square centimeter because reading it is assigned three minutes, only one-tenth of the 30 minutes in the FCC limit. On the other hand, Smart Meter 2 – positing a nearby human sleeper – is adjusted to 37.5 microwatts per square centimeter based on the eight hours discussed above.

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<sup>19</sup> OET Bulletin 65, page 11, equation 2,  
[http://transition.fcc.gov/Bureaus/Engineering\\_Technology/Documents/bulletins/oet65/oet65.pdf](http://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf)

<sup>20</sup> The tables are the work of Mitch Maifeld, a professional engineer registered in the State of Ohio,  
[www.zenzic.biz](http://www.zenzic.biz)

**Table 1**

<b>Device</b>	<b>Use Case</b>	<b>Frequency (MHz)</b>	<b>FCC Limit (<math>\mu\text{W}/\text{cm}^2</math>)</b>	<b>Max EIRP (<math>\mu\text{W}</math>)</b>	<b>Typical User Distance (cm)</b>	<b>Max Environment [continuous Tx] (<math>\mu\text{W}/\text{cm}^2</math>)</b>	<b>% of Limit</b>
smart meter 1	daily reading	902-928	600	2500000	20	497.359301	82.9%
smart meter 2	sleeping opposite meter	902-928	600	2500000	30	221.048578	36.8%

**Table 2**

<b>Device</b>	<b>Use Case</b>	<b>User Residence Time (hours per day)</b>	<b>Adjusted Limit (<math>\mu\text{W}/\text{cm}^2</math>)</b>	<b>Adj. Power Density [continuous Tx] (<math>\mu\text{W}/\text{cm}^2</math>)</b>	<b>% of Adjusted Limit</b>
smart meter 1	daily reading	0.05	6000.0	1.036165	0.0%
smart meter 2	sleeping opposite meter	8	37.5	73.682859	196.5%

It should quickly be noted that the tables do not account for reflected augmentation of radiation or for other than free-space losses, such as would be attributable to meter housings, exterior walls, etc. Nor do they factor in duty cycles. In the case of reflections and losses, these indices vary widely by environment. In the matter of duty cycles, omitting these creates a worse-than-usual case which Network believes essential to the practice of prudent avoidance of potential radiation harms.

It is sobering to recognize that Smart Meter 2 in the second table comes in at nearly 200 per cent of the adjusted FCC limit of 37.5 microwatts per square centimeter for the eight-hour period. If this is true for a general population in which adverse medical conditions are not presumed, there should be an even greater concern for protecting those who suffer from RF radiation-related disabilities or medical conditions. Under no circumstances should such persons be forced to pay a financial penalty for practicing prudent avoidance of Smart Meters.

## **5. Conclusion**

Those who opt out are effectively charged more for the use of utilities. This is



both unlawful and unreasonable. The Commission should ensure all ratepayers safe and reliable utility service at reasonable rates.

Dated: July 16, 2012 at Sebastopol California.

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