PRE-FILED TESTIMONY OF

RICHARD CONRAD, Ph.D

MPUC Docket No. 2011-00262

Q. Please state your name, address, contact information and occupation.

A. Richard H. Conrad, Ph.D.
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Biochemist, Inventor and Consultant

Q. What is your scientific background: your training and degrees?

A. I have a Ph.D. in Biochemistry from Johns Hopkins University and did postdoctoral research at the Institute of Molecular Biophysics of Florida State University and in the Department of Biochemistry of Cornell University. Please see my curriculum vitae attached as Exhibit A for further details.

Q. Have you studied the phenomenon of Electrical Sensitivity associated with exposure to radio frequency radiation?

A. Yes, in great depth. I have a great deal of experience with Electrical Sensitivity/ES/EHS from having it myself, from having consulted with hundreds of people suffering from it, and by reading the scientific literature on non-thermal effects of RF/EMF and on Electrical Sensitivity. I recently conducted a survey of people who have experienced electrical sensitivity related to smart meters (Smart Meter Health Effects Survey).

Q. What is your expertise pertinent to Electrical Sensitivity and to the Smart Meter Health Effects Survey?

A. I am highly qualified for designing and analyzing the "SMART METER HEALTH EFFECTS SURVEY" because I am in the unique position of:

1. being an expert in hands-on experimental research design, analysis and reporting;

2. having an in-depth academic training and knowledge of biochemistry, biophysics, spectroscopy and biocompatibility;
3. having an extensive knowledge and love of electronics, having designed and built dozens of different types of electronic devices, and was an amateur radio operator;
4. being a paid consultant having talked to and helped hundreds of persons with ES/EHS (Electrical Sensitivity/Electrical HyperSensitivity) and MCS (Multiple Chemical Sensitivity) issues over the past ten years;
5. being electrically sensitive myself for 15 years, therefore knowing EHS from the inside out;
6. having consulted with two experts in survey design, spent many hours reading survey design information, many hours on the phone with experienced SurveyGizmo tech support people, and having carefully read and followed the guidelines in the NIH Course: "Protecting Human Research Participants" (NIH Office of Extramural Research).

Q. What are your own experiences with Electrical HyperSensitivity/EHS?

A. I became electrically sensitive 15 years ago. I offer a complete account of my own experiences in the attached Exhibit B, which I incorporate into my testimony by reference.

Q. What are your conclusions about the current state of the science on EHS and the effects of RF on humans?

A. Based on my review of the science, it is my opinion that there are many common misconceptions about effects of EMF and about EHS (Electrical Hypersensitivity). The criticism that there are no plausible mechanisms for biological effects from low levels of RF exposure is totally invalid. I briefly summarize these points below, and provide a

more comprehensive expert opinion statement attached as Exhibit C, which I incorporate into my testimony by reference.

A first serious misconception: *"if EMF levels are not high enough to cause bulk heating of tissue, then there cannot possibly be any effect"*.

A second serious misconception: *"if the average power level is below a certain safe standard, then a device is safe, and it does not matter whether the RF is continuous or pulsed"*.

A third serious misconception: *"Electrical sensitivities are not real because people only imagine that they are sensitive to EMF; they took on these sensitivities out of paranoia after having heard about them from others; the nocebo effect*."

There are innumerable possible mechanisms, but in research, to insist on being able to conceive of mechanism before accepting good reproducible data is a clear sign of scientific incompetence.

Q. Describe your consulting services and what you have learned from speaking with your clients.

A. Every week I get calls from new people (who find me via my website www.conradbiologic.com) who say they have recently become electrically sensitive; especially lately, with the installation of so many smart meters. They call me for consulting help to reduce their electrical exposures from their computer and other devices in their office or home. I first question them in great detail, because I don't want to waste my time chasing psychological stuff. What I have found is:

1. There are a few (very few) persons I have talked to who, due to a high level of suggestibility and fear, thought they were sensitive to EMF and were obviously not (the

nocebo effect). I have also talked to two persons who sounded psychotic and believed without basis that they had ES.

2. Then there are some who become truly sensitive to some sources of RF and later become fearful that they are also sensitive to some other sources that they are not really sensitive to, due to a layer of "understandable" paranoia generated by really having suffered so much from something they could not see, hear, smell or touch. Especially those that tend to get emotional about it.

3. Some persons with true electrical sensitivities are additionally a bit neurotic or wacky, just like a lot of persons in the general population are.

4. In many persons with true electrical sensitivities, EMF exposures known or unknown can have an effect on the physiological functioning of the mind and hormones, causing ADD, migraines, neurologically induced stress or depression, etc.

5. Because of the severe limitations placed on their lifestyle by their very real (although usually invisible) disability, psychological stress and/or depression can understandably result on top of all this.

6. There are many people who are astute, completely level-headed and sane, like the numerous scientists, engineers, programmers, financial advisors and realtors I have talked to, who love their work and their computers but are truly disabled because they can't sit in front of a computer for more than a few minutes without having debilitating symptoms and so can't work anymore, they can only drive an older car with the early, less powerful computer under the hood (like my own 1990 Toyota Corolla), can't travel into many environments, their partners and friends leave them because they are not willing to believe or accommodate them, etc. It goes on and on, and gets worse and worse, and worse. EHS is very real.

EHS is similar to the situation with food allergies: a person who is allergic to a particular food will react to it whether or not they know it is a hidden ingredient in a mixture, a soup, for example. And most would not choose, either consciously or subconsciously, to be restricted in their choice of foods, or to feel worse after eating instead of better. It just happens. And people who have never experienced food allergies themselves often disregard it - they may accept the concept intellectually and yet at the same time not believe it at the emotional level (beliefs, and humans in general, are more emotional than rational). It would not be difficult for one person without food allergies to convince another who had never experienced allergies, that food allergies do not really exist in anyone. By analogy, this is likewise true in the case of EMF sensitivities.

Another analogy between EHS and food allergies: most people with EHS are much more sensitive to certain frequencies than to other frequencies. You won't get a positive result by challenging a person with wheat if they are allergic to dairy only. Thus if you are doing an experiment to test for the reality of EHS, you have to test the person to frequencies he or she is sensitive to. In such testing there are many variables, some of which are uncontrollable or unknown. Variables that must be controlled or taken into account include: recent exposures, current background exposures, current state of homeostasis/health/circadian rhythms of the person (or of the animal in animal studies, or of the cell culture in the case of in vitro studies). The above analogies also hold true for chemical exposures in persons with Multiple Chemical Sensitivities.

Q. What further evidence do you have that EHS is real?

A. The "anecdotal" evidence from day-to-day life supplied by persons who themselves have EHS (who are the real experts in this field), is very strong. It actually has all the elements of good science:

1. Totally blinded experiments with internal controls (at first, subjects were usually naive, and later, many exposures were inadvertent and only discovered after the fact).

2. Careful observation (pain is hard to miss, and is well-remembered).

3. Consistency and specificity; experimental results reproduced with similar results, dozens or hundreds of times:

A) in each sensitive individual (EMF exposure resulting in symptoms, then more EMF exposures resulting in similar symptoms, usually many times per month); amplified by nearly identical experiences in the form of inadvertent experiments by:

B) each of hundreds of thousands of sensitive persons who at first had never heard of EHS from anyone, each person having the same results.

4. Repeated, strong and direct correlation between specific cause and specific effect, closely related in time: EMF exposure repeatedly and rapidly resulting in uncomfortable, painful symptoms. This clearly shows that the smoking gun is EMF exposure.

Q. Please give a summary of the most common symptoms of EHS.

A. The symptoms fall into a typical group. Many of these seem to be generated by neurological changes and/or inflammation and include heart palpations or arrhythmia, burning skin, tinnitus/microwave hearing, unusual headaches and insomnia. The symptoms are often diffuse, and should be expected to be so because they appear to involve systems of the body that are completely diffused throughout the body: the biochemistry of the cells, and the nervous system, endocrine system and immune system.

Q. How did the Smart Meter Health Effects Survey come about?

A. As of six months ago I had never heard of smart meters. Then over the course of a few weeks I began receiving calls to consult for newly electrically sensitive people who asked me to advise them how to modify their computer set-up so they could tolerate using it.

Many of them said they had never heard of electrical sensitivities before, were developing strange symptoms they never had before, could not use computers, wi-fi or cell phones any more without painful symptoms (even though previously they had been using them heavily with wi-fi in offices and on in homes 24/7). Weeks or months after their symptoms began they first discovered a smart meter on their home. Upon inquiry, they found out it had been installed at the time or just before their symptoms initiated. Many of them had not even known or cared what a smart meter was before this. But then, intelligently (not fearfully) they began to make correlations: when they got closer to the smart meter, their symptoms got worse, and when they went further away, their symptoms lessened. All this was surprising to me because this device was initiating ES in previously normal, healthy persons who had tolerated wi-fi and cell phones for years with no problems.

Then I began reading the testimonies of others whose electrical sensitivities had been initiated, or in cases where the person already had ES, worsened considerably, by exposure to smart meters. Curious, I started to study the characteristics of smart meters, and even spoke to Ric Tell, the electronic engineer expert who has made measurements on smart meters for industry, to try to understand why these relatively low-power microwave transmitters could have such an effect. There are a number of possible reasons, which I will discuss later, but at this point the answer is unknown. In spite of not understanding how and why, it began to appear to me that the smart meters might really be unsafe for at least some people, in the short-term. What struck me most was the common time-line: normal people, strange new symptoms, and only <u>later</u> discovered that a smart meter had been installed. This is not mere anecdotal evidence, but is equivalent to double-blind experiments, and it was being reproduced many times by many naive

persons. But in their testimonials not everyone gave all the facts to enable a careful and objective analysis, and teasing the data out of many testimonials all written in different styles would have been a daunting task.

I saw these people were really suffering with what appeared to be a common array of diffuse neurological and other symptoms, that it seemed to be due not to fear or psychological factors, but to the smart meters and it was destroying their lives. So I wanted to help, and since no one else was collecting the data to try to discover what was really going on as far as health issues in the short-term, the survey began to take shape in my mind.

Q. What is the purpose of the Smart Meter Health Effects Survey?

A. The purpose was to develop reliable data much more solid than ordinary anecdotal evidence, about possible smart meter health effects, and their time-line (development of symptoms in relation to installation of smart meter in relation to knowledge of meter's presence). My purpose was to obtain a database for analysis to see whether or not smart meters are really the cause of people's reported symptoms - letting the data speak for themself - to see if smart meters are unsafe as far as health is concerned. Two of the key questions I want to answer are:

1) do smart meters initiate electrical sensitivities in previously normal persons, and

2) do smart meters worsen the electrical sensitivities in persons who were already electrically sensitive?

Q. Is this survey a prevalence survey?

A. Definitely not. That is not its purpose at all. We did not survey the general population, but only solicited responses from persons who already felt that they had experienced health effects/symptoms from exposure to smart meters. We have made no attempt to

collect data on prevalence of health effects from smart meters in the overall population. We only wish to establish whether or not smart meters are actually the cause of health effects in the persons who feel that they have already made such a correlation.

Q. Was not a previous smart meter survey and its summary report distributed in 2011?

A. A "Wireless Utility Meter Safety Impacts Survey" was conducted in 2011 by the EMF Safety Network, and its report is available on-line. It did collect much useful information, including on specific symptoms, but its main emphasis was not on health effects. It did not ask detailed enough questions to establish a time-line, nor did it ask whether people were initially normal without sensitivities, or had ES before their smart meter. My Smart Meter Health Effects Survey is specifically about health effects and asks many more detailed health effects questions.

Q. What safeguards does the survey incorporate to recognize mistakes or to prevent bogus answers?

A. A number of the most critical questions are asked in a few different ways, and on different pages of the survey, in order to provide a cross-check against possible mistakes and bogus answers. (It is a forward only survey, which means that the respondent cannot go back to see how they answered a previous version of a similar question, nor can they change an answer on a previous page). In the approximately 20 cases I found where answers conflicted, I called and spoke to the respondent and carefully asked them the question(s) again in a way so as to avoid biasing their answer, and edited the survey accordingly, with their permission. All except about 10 respondents had supplied first name, last name and mailing address (in most cases a street address) and most also gave a phone number and/or email. In the 3 cases where the person was not reachable, I

converted an impossible answer to n/a. About 5 surveys were clearly bogus, and I excluded these.

I carried out a search to find all cases where more than one survey had come from the same IP address. I found five instances, and checked all of them out carefully: one was a mother and adult daughter both affected by smart meters, one was housemates both affected, two were husband and wife both affected, and one was a woman who had taken the survey twice because she had changed her mind about some answers. When I emailed the latter, she could not confirm that her symptoms were from smart meters, so I excluded both of her surveys.

Q. What are the conclusions of the Smart Meter Health Effects Survey?

A. A copy of my report with a summary of survey results is attached as Exhibit D.[1] The survey results provide very strong evidence that smart meters are causing painful and debilitating new symptoms in many previously normal healthy people, and causing them to become electrically sensitive to a whole range of electronic devices including Wi-Fi, cell phones and computers. Because of exposure to smart meters, people are becoming electrically sensitive at an unprecedented rate. Many of these people had previously lived with Wi-Fi in their homes on 24/7, worked in offices with Wi-Fi and many computers all day long, and had used a cell phone, all without symptoms. This includes professionals from all walks of life: doctors, dentists, nurses, teachers, realtors, salesmen, and many who absolutely needed their computers for their work and had loved their electronic devices: computer programmers, electronic engineers, accountants and graphic artists.

[1] The complete set of survey data is available upon request. Because the production of this report was rushed to meet the testimony deadline in large part because of technical difficulties at Survey Gizmo, further compilations and summaries of the survey data may be produced with supplemental testimony.

Q. What are some common effects on people of the symptoms reported in the Survey, and when do these symptoms appear and disappear?

A. The symptoms caused by smart meters are often disabling, and are sometimes painful to the degree of torture. Since smart meters and the cell phone towers that smart meters have sensitized people to are almost everywhere now, these people have no place to go to escape. They are trapped (unless they can afford to buy a huge ranch). They are trapped in a hellish situation, not one of their own making. This Survey has demonstrated that the personal evidence is equivalent to hundreds of double-blind experiments, and is not psychosomatic or mass hysteria. These unfortunate people bear none of the responsibility. The responsibility falls solely on new technology - particularly smart meters, and the people who implemented them without any biological conscience, without conducting a human impact study (while distributing a large amount of propaganda in an attempt to proactively counter the thousands of research papers that demonstrate biological effects of non-thermal levels of microwave radiation). Would hundreds or thousands (or millions worldwide) of initially naive persons, many of them astute, <u>independently</u> choose such a disability because of some form of mass hysteria? This is an illogical conclusion due to either a lack of intelligence, being misinformed, or having vested interests combined with lack of ethics. Therefore people with EHS, the real experts, whose vested interests are biological - human health, human rights and biocompatibility - are those who should be listened to, rather than engineers and businessmen with technological and financial vested interests.

<u>It is extremely important to note that in 42% of the survey respondents, the symptoms and sensitization began before, (often months before) they knew that there was a smart meter present. Many of these persons had never heard of electrical sensitivities</u>

before their symptoms began, and some had never heard of a smart meter. Thus this evidence is not merely anecdotal evidence, but is good scientific evidence, obtained in double-blind experiments reproduced in many, many people. These smart meter effects cannot possibly be psychosomatic, in spite of publications that claim otherwise.

Q. Please describe the Survey results in more detail.

A. Setting aside all prior research results and papers good and bad, biased or not, preconceptions, debates about mechanisms and non-thermal effects, calculations right and wrong, theories, microwave power levels seemingly too low to have any effects, vested interests, fears of EMF or of cancer risk or other possible long-term health effects; the survey results show that in:

1. 210 survey respondents,

2. the majority well-educated (9 PhDs, 1 MD, 1 DDS, 42 MS or MA, 70 BS or BA),

3. many initially healthy and normal, without sensitivities, using WiFi, computers and cell phones without symptoms,

4. many had no prior knowledge of electrical sensitivities and had not cared one way or another about smart meters,

5. all began to develop painful symptoms very typical of electrical sensitivities (including loud tinnitus, heart palpations or arrhythmias, burning skin, severe headaches, neuropathies, difficulty concentrating, sleep problems and more) soon after their smart meters were installed,

6. where 42% of them were not even aware that a smart meter had been installed on their home until after they developed symptoms (a double-blind "experiment"), and 16% did not develop symptoms until weeks or months later (if they were going to have

psychosomatic symptoms, these would have developed in minutes, hours or days, not weeks or months), and

7. when they were able to have the smart meters removed, their symptoms lessened usually immediately, sometimes completely, and usually leaving them with electrical sensitivities where they no longer can use their electronic office equipment at all, or only for very short periods of time.

To any logical mind, the above 7 points, when viewed together constitute solid scientific evidence. Evidence that indicates there is something as yet undiscovered about smart meters that is causing them to sensitize people to EMF - to develop Electromagnetic HyperSensitivities (EHS). This is a real, seriously disabling and growing problem that will not go away by itself. It is not psychological in spite of understandably sometimes having emotional or psychological overlays, but these are only layers on top of very real physical, physically caused symptoms. Many of these persons have had to leave their homes and careers. Sometimes everyone in the family develops symptoms.

In some cases the problems were due to banks of 30 to 60 smart meters within 10 feet of their apartments or beds, but in many cases people have been affected only by their own single meter on a private home in a residential district with spaced-apart houses.

I am writing here about real people and real suffering. Presently more and more people are developing EHS worldwide at an alarming and unprecedented rate (O. Hallberg & G. Oberfield, Electromagnetic Biology and Medicine, 25: 189–191, 2006, attached as Exhibit E). The total number is already huge - we shouldn't have to wait until the numbers grow even larger to get help - the number of people already affected is enough to require doing something about it. These people will have no place left to go,

and no careers. Smart meters are an experiment carried out by utilities and others mostly for their own profit, without prior safety testing, and it appears to be a classic example of technology creating far more problems than it solves, problems of all kinds that will persist and increase. It will be like swallowing an endless string. There will be no end to health problems, health costs and financial costs. Smart meters as they are today are extremely flawed - an overly complex system being propagated worldwide without any human impact study. There are far smarter ways to implement a smart grid. If a technology is not carefully and properly designed to serve human beings, then human beings end up being slaves to (and in this case, injured by) the technology.

Furthermore, EHS sensitization and the resulting outcry against smart meters does not originate as a coherent or mass phenomenon. It consists of many separate individual occurrences arising independently again and again in naive individuals, in countries all over the world. After they discovered that others also had similar symptoms following smart meter installation, people banded together to assert their rights. Here is an excerpt from an email I received recently from British Columbia, Canada: *"I am getting emails almost daily from people suffering health effects from being near these meters. Many have never heard of sensitivity, allowed the meters because they had no concerns, and are now suffering from tinnitus, disturbed sleep, headaches, palpitations – the classic symptoms of sensitivity."*

Q. What is your opinion about why smart meters are making people electrically sensitive?

A. There is something unique about the RF emissions of smart meters, in spite of their average power being very low, that makes them more sensitizing than Wi-Fi or cell phones. It is surprising that they are so sensitizing, but that is the reality. Electronic

engineers underestimate the sensitivity of biological systems, just as chemists did until recently. We do not know why smart meters are so sensitizing. The manufacturers do not reveal enough of the design and operational details for us to know, and some of what they have revealed has turned out to be untrue. The measurements are hard to make on networks in the field. The culprit may be the microwave pulses themselves radiated through space to the person, or first propagated closer to the person via conduction on house wiring and then radiated.

Some clues:

1. Many persons who managed to avoid having a smart meter on their own home were affected by the neighbors' smart meters.

2. AMR meters were problematic, not just AMI.

3. Smart meters whose transmitter was supposedly turned off were problematic.

We may be able to tease more information about these points later from the Survey data.

Questions that it would help to have answers to:

1. Are some brands of meters worse (more sensitizing, more painful) than others?

2. Which is worse: meters that use FHSS (Frequency-Hopping Spread Spectrum), or those that use DSSS (Direct-Sequence Spread Spectrum) data transmission protocol?

3. Are the meters that are causing problems simply not within specs?

4. How much of the microwave pulses, and/or of the noise from the switching power supply actually gets onto the power line/house wiring?

5. What is the peak amplitude of the pulses? Is it greater than the 1 or 2 watt rated output of the transmitter, even though the average power and duty cycle are low?

6. Exactly what is the fine structure of each pulse (both of data pulses and of any other mesh network pulses), and what is the frequency of the hopping, if any? In frequency

hopping, is there a time gap between hops, or does the signal look continuous within each overall data pulse? A frequency hopping transmission changes channels at regular intervals which are sometimes in the range of approximately 10 hops per second - this essentially constitutes 100% AM modulation at an important biological frequency - 10 Hz (http://www.audiotel-support.com/site/appnotes/Spread Spectrum transmissions.pdf).

We need to see scope traces of smart meter outputs at various time bases, even slow traces, say 1 minute full screen, and also and particularly at 1 second full screen to look for the known biologically relevant frequencies of 2 thru 60 Hz.

People can take measures to avoid or filter polluted air or water, but they cannot avoid or filter or effectively shield EMF. Even with opt out or opt in programs, neighbors and all businesses will still have smart meters. Sensitive persons will have to move, with very, very few affordable practical places to go, and will be denied access to businesses and offices for employment purposes, access to medical care, shopping and everything else. An analogy would be to blanket the earth with peanut dust; a certain percentage of people would become and remain very ill, or worse.

Q. What do many Electronic Engineers say about smart meters?

A. Many electronic engineers and the politicians and utilities that listen to them are of the opinion that the levels of EMF emitted by smart meters are so tiny they cannot possibly have any effect on humans. They firmly believe this because:

1) these levels are below the thermal "safety" limit the FCC has set,

2) they consider the results of research on non-thermal effects very controversial,

3) they erroneously believe that one cannot accept research results until one can prove or at least imagine a mechanism first,

4) since they are experts in electronics, they unconsciously assume that their expertise carries over into being able to make judgements about possible effects of EMF on humans, and

5) they are not aware that they have experienced any effects themselves.

I respond with realities:

1) The FCC limit is not biologically relevant since it is only a thermal limit, i.e. the limit before appreciable bulk heating of meat begins, and it is a time average which does not factor in biologically important frequencies or the biologically relevant peak power. In a letter written by Norbert Hankin of the US EPA Center for Science and Risk Assessment, Radiation Protection Division (see attached Exhibit F, incorporated herein by reference) he said "*the generalization by many that the (current FCC) guidelines protect human beings from harm by any or all mechanisms is not justified."*

2) Most engineers don't have enough knowledge of molecular biology to realize that many possible high-gain mechanisms do exist that could account for non-thermal effects.

3) There are many hundreds of research papers showing non-thermal effects, but funding to confirm the results or to do more research in this direction has dried up. Industry has flooded the journals with research and review articles that are very heavily biased in the opposite direction. I discuss this further in my attached Exhibit C, incorporated herein by reference.

Therefore, discussions based on FCC limits, engineering opinions, beliefs or research results are as unproductive as arguing over interpretations of the Bible, and none of the above is very useful to us at the present time. What we do have in the Survey is real-world solid evidence that real people have actually been injured and continue to be injured by smart meters, in spite of the opinions of engineers.

Where did the highly erroneous concept originate that you need to prove a mechanism (or even need to be able to imagine a mechanism) before accepting data? This is the exact opposite of the creative scientific attitude that can result in breakthroughs. Many people are afraid of breakthroughs; they rock the boat and the vested interests. Wherever it began, this false concept has of course has been taken up by industry and government as a battle cry, then parroted by the media, and now everyone believes it, even most "scientists".

Q. Based on your studies, your work with EHS sufferers and your survey results, what are your opinions on the question of whether smart meters are safe or "unsafe"?

A. What does it take for smart meters to be considered unsafe? What % of the persons who have smart meters on their residences, or what actual number of persons, would have to be shown to have been harmed with certainly by smart meters? 0.1%? 1.0%? 5%? 10%?; 1,000 persons? 10,000 persons? 100,000?

What constitutes a threat of harm to the health of normal persons? If 1% of normal persons are made ill from smart meters, this means that if a normal person has a smart meter installed on their home, there is a 1% probability of harm. Would this not be a threat?

If a government agency or a corporation was forcing the deployment of technology on citizens that was known in advance to cause disability or significant harm to one out of every 100 citizens, would this amount of harm be "acceptable" or would it be cause to halt such deployment? What would the probability of harm have to be to be prevent deployment? The actual acceptable limit chosen would probably be proportional to the perceived degree of necessity of the particular technology. Most technology is not

as necessary as we think it is. There is always a safer design. The precautionary principle is the only ethical way to proceed.

AN INCONVENIENT TRUTH: smart meters are sensitizing hundreds of thousands, maybe millions of people all over the world to become Electrically HyperSensitive, regardless of the stubborn adherence of industry and the FCC to thermal "safety" standards. Their response to non-thermal evidence is to ignore, disregard, deny, and above all, disbelieve. They neither conduct nor support unbiased non-thermal effects research.

Elihu Richter, MD, MPH, Hebrew University-Hadassah School of Public Health and Community Medicine: "Were these population-wide exposures to smart meters to be part of a project carried out in a medical setting, to test the risks and benefits of a new technology on human health and well-being, it would be rejected by a Medical Institutional Review Board on ethical grounds as an unethical exercise in human experimentation." (http://sagereports.com/smart-meter-rf/docs/letters/Eli_Richter_CCST_-final.pdf)

Q. Do you have further thoughts for the Public Utility Commission to consider about opt outs, the FCC and possible solutions?

A. Yes, I offer additional comments on these subjects in the attached Exhibit G and incorporate them into my testimony by reference. Please also see copies of individual surveys attached as Exhibit H, submitted with the authorization of the individuals.

Dated this 1st day of February, 2013.

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Richard H. Conrad

Richard Conrad
Curriculum Vitae

EDUCATION and DEGREES

B.A. in General Science, Brandeis University, 1962
Ph.D. in Biochemistry, Johns Hopkins University, 1968
Postdoctoral Research at the Institute of Molecular Biophysics, Florida State University, 1968-1970
Postdoctoral Research in the Department of Biochemistry, Cornell University, 1970
Assistant Professor in the Zoology Department of the University of Washington, Seattle, 1971-1972 (Taught Biochemical Techniques, Cellular Neurophysiology, and a seminar: "Conscience and Curiosity in Scientific Research").In 1972 my academic career was cut short by health issues - due to major surgery and viral hepatitis.

OTHER

1957, Research in the Department of Immunology, Rutgers University, (while a Junior in High School).
1957, First Prize in the National Science Fair, for an immunological study of the evolutionary relationship of proteins of various single-celled plant and animal organisms: *Euglena, Plant or Animal?*
1958, Honorable Mention in the Westinghouse Science Talent Search.
1958, Science Honor Award at graduation from my High School.
1958, Science Honor Scholarship from Brandeis University.
1963, Participant aboard Stanford University's Hopkins Marine Station schooner *Te Vega* on its first expedition, a training cruise in Biological Oceanography, sponsored by the National Science Foundation, San Diego to Fiji.

PUBLICATIONS

Conrad RH,
A centrifugal stirrer for rapid mixing in square cuvettes during spectrophotometric measurements.
Analytical chemistry 1967 Jun; 39(8).R. H. Conrad & L. Brand,
Intermolecular transfer of excitation from tryptophan to 1-dimethylaminonaphthalene-5-sulfonamide in a series of model compounds.
Biochemistry 1968, 7, 5777.
Richard H. Conrad , James R. Heitz , Ludwig Brand,
Characterization of a fluorescent complex between auramine O and horse liver alcohol dehydrogenase.
Biochemistry, 1970, 9 (7), pp 1540–1546.Crepeau RH, Conrad RH, Edelstein SJ,
UV laser scanning and fluorescence monitoring of analytical ultracentrifugation with an on-line computer system.
Biophys Chem. 1976 Jul; 5(1-2):27-39.

PATENTS

UNITED STATES PATENTS (awarded to Richard Conrad as sole inventor)

1	5,269,893	Method of powering corona discharge in ozone generators with bipolar pulses and a precharge pulse
2	5,211,919	Flat plate corona cell for generating ozone
3	5,151,250	Automatic purge method for ozone generators
4	5,147,614	Self-contained tubular corona cell for generating ozone
5	5,130,003	Method of powering corona discharge in ozone generators
6	5,119,640	Freeze-thaw air dryer
7	5,106,589	Method of controlling ozone generator
8	5,032,292	Method for preventing biofilm in spas
9	5,023,021	Cartridge venturi
10	4,733,427	Underwater brush

To show my experience in hands-on custom electronics design and construction, I include the following Abstracts of two of the above patents:

Abstract of United States Patent 5,130,003;
Method of powering corona discharge in ozone generators:
A method of supplying electrical power to and controlling corona discharge cells used for the generation of ozone employs a single-cycle discontinuous waveform which is characterized by a fixed pulse width and a variable repetition rate. Discrete bipolar pulses are composed of a pair of unipolar pulses of opposite polarity. The bipolar pulse repetition rate is varied to control the average corona power, providing an infinite turndown of ozone output. When powering discharge cells which are asymmetric in their response to pulse polarity, such as those containing a dielectric coated with a conducting surface as a first electrode and a metal as a second electrode, the present invention configures the first pulse of each pair to make the dielectric electrode electronically negative with respect to the metal electrode. This polarity sequence produces a more stable corona and far less electrical noise. Furthermore, to decrease acoustic and mechanical resonances and fatigue to system components and to the human ear, this invention broadens the frequency distribution of the pulse repetition rate by repetitively sweeping or randomly jittering the intervals between bipolar pulses.

Abstract of United States Patent 5,269,893;
Method of powering corona discharge in ozone generators with bipolar pulses and a precharge pulse:
A method employing a precharging pulse to adjust and/or to equalize the peak voltages of a discontinuous bipolar pulse waveform used for powering a corona in an ozone generator system. This precharging pulse is generally opposite in polarity to the first unipolar pulse of the bipolar pulse waveform, and precharges the inductances and capacitances of the system to provide priming energy for the first corona pulse and to compensate for skewing of the waveform due to resonances. This method enables the corona to be operated at the optimum voltage for efficient ozone generation, and provides the ability to fine-tune each system to best match high-voltage transformers to corona cells.

Additional US PATENT APPLICATIONS filed by Richard Conrad

1 20080106523 *Ergonomic lift-clicking method and apparatus for actuating home switches on computer input devices.*
2 20060132447 *Method and apparatus for automatically transforming functions of computer keyboard keys and pointing devices by detection of hand location.*

RESEARCH EXPERTISE & FIELDS OF INTEREST

Basic research in molecular biology: hands-on experimental laboratory work including development of fluorescence spectroscopy electro-optic instrumentation for studying the interaction of light energy with biological molecules; resonance energy transfer between chromophores.

More practical and efficient methods of generating ozone for use in water purification including the design and construction of a custom variable frequency 10 Kilovolt switching power supply.Additionally, design and construction of a low EMF projector and zero EMF keyboard and mouse and study of subliminal visual flicker in computer screens and fluorescent lights.
Biocompatibility research, design, education and consulting;
1) Mechanical: ergonomic keyboard and mouse.
2) Chemical: body burden, pesticides and estrogenic chemicals, sauna detoxification.
3) Visual: computer and TV screens that do not trigger subliminal flicker symptoms.
4) Electrical: effects of non-thermal levels of EMF on humans; education and consulting concerning Electrical HyperSensitivity.
5) Trouble-shooting: pinpointing and solving problems caused by technology; sorting out the wheat from the chaff in scientific publications, the science from the junk science and propaganda.

Personal Experience with EHS

About 20 years ago I sat for many hours every day writing patent applications with my body two feet from a computer and with the switching power supply of an overhead projector one foot behind my shoulder. At that time I was also designing, building and testing a high voltage pulsed switching power supply. I never had any symptoms of electrical sensitivity. A friend of mine told me she had EHS, and described it to me. I was very skeptical, and chalked it up to her emotional fears. I continued working for a few more years as I just described above, and then for another few years with a different set-up, also with a computer two feet from me. No EHS symptoms.

Then 15 years ago I purchased a data projector to use with a rear projection screen as my computer monitor (to give me a huge screen without flicker). The projector was a full ten feet in front of me, and the image was beautiful. I used it successfully for a few hours a day for about a week, but then began to notice a strange burning sensation on my skin all over my body. At first the burning started after the projector had been on for two hours, then a few days later after it had been on for 20 minutes, and by the end of the next week the burning started within a few minutes. (Projectors have a powerful and electronically noisy switching power supply they use to power their lamp.) I returned the projector. <u>This was my first experience of EHS.</u> This projector was my initiating trigger. At that point I had had MCS (Multiple Chemical Sensitivity) for about 5 years, and I assume it had predisposed me towards developing EHS.

Soon after that I bought an external back-up drive for my computer. I set it up 10 feet from me, and as soon as I powered it up I felt a tightness in my arms and other symptoms. Then my beloved electronic MIDI keyboard began to give me problems - my hands and wrists began to

hurt after playing it for only a few minutes, and left residual stiffness and pain that similar to carpal tunnel syndrome. Later I developed the same symptoms in one hand that was close to a CRT monitor for just a few minutes.

The fastest symptom I ever had was the first time someone handed me a wireless phone (I don't remember if it was a cordless or a cell phone) - a call had come in for me - and without thinking or worrying about it I put it to my ear. It felt like someone had hit me on the side of the head. It hurt and made me dizzy for a few minutes.

Once I walked up to an cardiac ultrasound machine to see if I could tolerate it; I had been having arrhythmia and A-fib (since resolved) and they wanted to do a scan. (I was not afraid of ultrasound, I thought it was neat; I had had a gall bladder ultrasound scan many years before, before I was electrically sensitive - no problem.) When I was about 5 feet from the powered-up cardiac ultrasound machine and 2 feet from its transducer, the skin all over my body began to burn; I walked away immediately, and the burning lasted 4 hours.

Another example: I had purchased a 30 amp welder (basically an extremely powerful switching power supply) to use for generating current for an electrolytic wastewater treatment. It made my legs burn and leg muscles hurt if I was closer than 75 feet to it. If I was between 75' and 50' the burning stopped immediately soon after I stepped further back than 75', but if I got closer than 50' for more than a few seconds, the burning persisted for at least a half hour. I managed inadvertently to repeat this experiment at least a dozen times over a period of a few weeks while working with an assistant on my project. I wanted to stand closer to be more involved in the experiments, but could not.

Another: I was doing some experimental electroplating for which I tried to use my Wavetek function generator. When I tuned it to about 300 KHz it made my whole body hurt. I could no longer use it and had to sell it. I had loved my Wavetek.

Many other examples:

Some computers caused me no symptoms (in the short-term), some immediately caused a burning prickly sensation on my skin from 8' away. Once when my arms were reaching over a flat-bed scanner while it was operating, the muscles in forearms spasmed, and hurt for a few minutes. It felt very strange.

A few months ago I tried out 5 different data projectors to choose one for use at a distance as a rear-projection computer monitor for electrically sensitive persons - a few of my clients are electronic engineers desperate to get back on line. My symptoms at 10 feet: tinnitus, skin burning, muscles and/or joints hurting, ADD, peripheral neuropathy. Each projector produced a slightly different combination of symptoms. Some projectors caused more pain than others. With some the symptoms disappeared almost immediately when I shut the projector off, with others symptoms persisted for a few days and made me more electrically sensitive to other devices for awhile. And of course of all of these projectors were rated to be within the FCC Class B (for residential use) guidelines for EMF emissions.

Other FCC Class B devices that have increased my sensitivities for many weeks were a HP printer with its WiFi on (I had been told by tech support that the WiFi was off by default but it was not), and a Samsung 40" LCD LED TV.

I am a hands-on experimental basic research scientist, a very objective and observant person, with a good nose for artifacts. I know how to keep my variables separate. I am not very

susceptible to either a placebo or a nocebo effect. I am a real techie, and love electronic devices. I do not fear them.

Another experience I had that resulted in strong symptoms from EMF exposure and was a very good (and inadvertent) experiment because it was not merely single-blind (me being the completely blind subject), but it was reverse-biased double-blind (the experimenter - the massage therapist - expecting a positive effect if any): A number of years ago I was driving from Marin county to Berkeley once a week for a therapeutic massage from a good physical therapist who was helping me considerably with my fatigue and other things. He had me lie on a sheet-covered thin futon on the floor while he worked on me, and I always felt better during and after his work. But one time I began to feel poorly while he worked on me, an uncomfortable, cloudy-drugged sticky feverish feeling, as if I needed a cold shower to clear my head and body. I continued to feel poorly when he was done, and when I got up I had a ringing in my ears, and ADD. The uncomfortable feeling and tinnitus persisted, and during my drive home, when I turned on the radio, I could not stand to listen to even classical music; sounds seemed distorted for about 3 days. I called him and he told me about a new treatment pad that he had placed (for the first time) under the futon, he said it was electronic and helped to quiet the mind - he "could not even concentrate to read" if he sat on it. He used it for meditation.

On my next visit I brought along my Tektronix storage oscilloscope. For the first time I noticed a small metal box six feet away from the futon with a wire running from it to under the futon I had been lying on. I peeled back the futon and saw what looked like a heating pad maybe 2' or 3' wide x 4' or 6' long underneath. I unplugged the wire from the metal box and connected it to the scope, and saw a waveform of about 10 to 12 KHz broadened by noise, sort of a noisy spread-spectrum. It had definitely affected the way I felt for a day or two, and my hearing

remained distorted and music and some voice sounds were uncomfortable for at least 3 days. Since then I have discovered that some of the common symptoms of exposure to EMF in sensitive persons are ADD and tinnitus, which in some cases can progress into hyper-acousis.

A common symptom of EMF exposure is peripheral neuropathy: tingling, pins and needles, and/or numbness in the hands or feet. I drove a Subaru Legacy for a few years and my right foot was numb the whole time. A few months after I changed to an old Toyota Corolla the numbness went away, but since then my right foot has been like an EMF meter. For example the tingling and numbness in my right foot returns and persists for a few days or weeks after exposure to computers in Dr's offices, or to projectors I try out. Once I had to be in a hospital with WiFi throughout for 6 days, and did pretty well because I had all the electronic devices in my room switched off and the rooms next door were vacant, but on the 5th day I developed peripheral neuropathy in both hands, which persisted for 6 weeks. Since then it has only returned in both hands once, after inadvertently being near a hidden switching power supply for an hour in someone's office. Recently I developed symptoms similar to peripheral neuropathy in only one hand when I used that hand for about 20 seconds to clear a paper jam in my printer without turning it off. The numbness and tingling/pins and needles persisted for about 2 days.

One of the strongest symptoms I have experienced was when I test drove an older Saab that I wanted to buy. By the time I got half-way around the block, I had terrible chest pains, which felt like my heart was clutching, which I had not experienced before or since (my heart is fine), and my legs muscles cramped (also unusual for me). I almost did not make it the rest of the way around the block back to the dealership. The symptoms disappeared within a minute after I turned off the ignition. It turns out that the Saab has 3 computers in the engine compartment just

behind the firewall. Also, I came back later with a gaussmeter (VLF range) and it read 100 milligauss (very high) at the driver's seat.

So I don't rely on opinion or belief, rather, I rely on direct experience, both my own and that of many others I've talked to who developed symptoms before they had ever heard of EMF sensitivities, symptoms that they later correlated with EMF exposure. It is not necessary to be able to conceive of or to understand a mechanism before acceptance of good anecdotal or experimental evidence. In that case we would never have any new discoveries. Nor would we accept the existence of gravity. No good scientist would discard reproducible evidence out of hand just because it is anecdotal and does not fit pre-conceived ideas or theories, instead she or he would become excited at the prospect of new understanding.

In summary, all of my statements about ES are based on a great deal of direct experience, later corroborated by the experience of others, and examined by my overcritical and very analytical experimenter's mind. My electrical sensitivity unfortunately is very real. It prevents me from doing a lot of things that I love. The symptoms are definitely triggered by EMF. Many, many inadvertent "double-blind" type of experiments over many years have proved to me beyond any doubt that my ES symptoms are caused by EMF. I am much more sensitive to EMF emissions from some devices and less sensitive to others; it is impossible to predict in advance. I just have to try them out. In general, switching power supplies tend to be a problem, and some are far worse than others.

Anecdotal evidence is irrefutable when it comes from the independent testimonies of many people who were initially *naive*. In fact, then it is no longer merely anecdotal, but is scientifically valid evidence equivalent to data obtained in double-blind experiments. Note that Bradford Hill, in spite of being the originator of *Hill's criteria for causation*, warned against

laying down "hard and fast rules of evidence that *must* be obeyed before we accept cause and effect." (Except of course that cause must precede effect.) (From the Proceedings of the Royal Society of Medicine 1965; 58:295-300).

People only realize that they have become electrically sensitive because of repeated correlation of symptoms with exposures, often in inadvertently "blind" experiments where they were not at first aware that they were being exposed. It is understandable that someone who has never experienced EMF symptoms in their own body would reject the possibility of EHS at first, thinking the person "claiming" EHS to just be impressionable and fearful. EMF is invisible, and the symptoms it causes are usually invisible. It takes hearing about EHS from more than one person, reading about it in more than one place, to begin to be convinced. Becoming convinced at the intellectual level is only the first step; "getting it" emotionally is even more difficult, especially if a person has never personally experienced a serious allergy. Years ago I had thought that EHS was not real. I could not accept it until months after I experienced it myself. Since then I have spoken to hundreds of people with experiences and symptoms very similar to mine. Most had never heard of electrical sensitivities when they first had symptoms, and most of them love their electronic devices.

I would define EHS as being a syndrome in which unconscious parts of the body's physiology react with painful and destructive symptoms to levels of EMF considered by the FCC to be extremely low. At first we usually have no idea what is happening to us, or what the cause is. Only later do we make a correlation - cause and effect - with EMF. And then we are often faulted for being astute enough to make that correlation, by people who get it backwards and think the symptoms are a result of fear of EMF.

From my 15 years of talking to hundreds of persons I can say with certainty that some

people are predisposed to developing EHS by previous exposure to toxins such as pesticides, by already having MCS (Multiple Chemical Sensitivity, about half of the people who have MCS eventually develop EHS), Lyme disease, and various autoimmune disorders. The actual initiating trigger of EHS is often an unusually long and/or intense exposure to a particular source of EMF. I had MCS first for five years, and then my own initiating trigger was a data projector. Some examples of initiating triggers for others I have spoken to are: a graduate student at Stanford University hanging his body over the huge electromagnets of the Stanford Linear Accelerator to adjust them while they were on; a writer sitting in front of her computer for 10 hours straight instead of her usual 2 or 3 hours; a man standing next to an induction-type stove-top while it was on (a huge source of EMF); a woman sleeping in a travel trailer for a week with a DC-to-AC solar inverter under her bunk; and by far the most common lately, smart meter exposure.

Once a person has become sensitized, repeated exposure to the same source re-triggers the symptoms. What almost inevitably happens next is the sensitivity increases greatly (lower and lower intensities of exposure triggers symptoms) and the sensitivity begins to spread to wide variety of sources. A person becomes more and more sensitive to lower and lower levels of EMF from more types of electronic equipment and a wider range of frequencies. Different people are sensitive to different frequencies, usually the ones they are exposed to most frequently. The results of the Smart Meter Health Effects Survey is further proof of the reality of electrical sensitivity/electrical hypersensitivity ES or EHS. Listen to the people. A few may be fearful and imagining things, but the vast majority are not.

Misconceptions & Mechanisms

A first serious misconception: *"if EMF levels are not high enough to cause bulk heating of tissue, then there cannot possibly be any effect"*. Anyone who makes this statement is either highly dishonest (vested interest) or is misinformed and totally ignorant of the way that scientific discoveries usually come about and also ignorant of molecular biology, because in reality:

a) There are many possible biological mechanisms with very high gain (the inherent ability for very high amplification) that could account for the sensing of low, non-thermal levels of EMF and for its short and long term effects, in both electrically sensitive and normal persons.

b) To be able to understand a mechanism is not a prerequisite for the acceptance of carefully researched anecdotal or experimental evidence; if unusual data were rejected because they were not understood, we would miss many new discoveries. No good scientist would discard reproducible evidence just because it is anecdotal and/or does not fit pre-conceived ideas or theories, instead she or he would become excited at the prospect of new understanding.

c) Many of the research papers and review articles that deny the existence of non-thermal effects were funded by cell phone companies. They make false assumptions and misuse logic to reach conclusions in accordance with their vested interests, in spite of the many hundreds of excellent publications that do show non-thermal effects. Today there is almost no research money available for bona-fide research on non-thermal effects; at least half-a-dozen prominent researchers who discovered non-thermal effects have had their funding withdrawn and were told to work on something else.

d) Even many currently accepted biological phenomena have not yet been understood in detail and are still lacking not only mechanism but sometimes also description. Anyone who is

aware of this, and who also considers the extreme sensitivity of vision (a single photon is detectable by the retina), olfaction (only a few molecules), and hearing (about a billionth of a watt) would have to be blinded by bias to not accept the fact that non-thermal detection of EMF by humans is a definite possibility. **Good science consists of first, accurate observation and recording of data, and second, developing theories based on the data. Bad science consists of holding firmly to a preconceived theory and discarding any new data that do not fit.**

e) It is safe to say that no one, not you, not me, and no scientist or physician is aware of more than a tiny fraction of what is going on inside the body, especially at the cellular and sub-cellular molecular level. The "hardware" and "software" of living systems are far more sophisticated and complex than the most complicated computer. We only understand a small portion of the way everything develops, organizes and maintains itself, particularly concerning the mechanisms of electrical and molecular signaling and feedback homeostasis controls. We are still in the dark ages compared to where we hopefully will be in 200 years.

From Wikipedia: In the 1800s Dr. Ignaz Semmelweis noticed that women giving birth at home had a much lower incidence of childbed fever than those giving birth in the doctor's maternity ward. His investigation discovered that washing hands with an antiseptic solution before a delivery reduced childbed fever fatalities by 90%.[2] Publication of his findings was not well received by the medical fraternity. The idea conflicted with both the existing medical concepts and more importantly, with the image that doctors had of themselves. That intransigence consigned large numbers of mothers to painful, lingering deaths.[3] The scorn and ridicule of doctors was so extreme that Semmelweis moved from Vienna. Despite various publications of results where hand-washing reduced mortality to below 1%, Semmelweis's observations conflicted with the established scientific and medical opinions of the time and his

ideas were rejected by the medical community. Some doctors were offended at the suggestion that they should wash their hands and **Semmelweis could offer no acceptable scientific explanation for his findings**. Semmelweis's practice earned widespread acceptance only years after his death, when Louis Pasteur confirmed the germ theory.

The lesson is: It is the height of presumption and ignorance to say that reproducible evidence should not be accepted until we know the mechanism.

A second serious misconception: *"if the average power level is below a certain safe standard, then a device is safe"*. Aside from the fact that the safe standard itself was set too high (essentially it is based on avoiding the cooking of dead meat), many electronic devices generate very short pulses, followed by relatively long off periods. This is called a low duty cycle. For example, if a pulse is a thousandth of a second long and repeats once per second, this would result in a duty cycle of 1/1,000, or 0.1%. Thus the instantaneous peak power would be 1,000 times greater than the average power, and if the average power was near the "safe" standard, then the peak would be 1,000 times greater than the "safe" average power. For many biological mechanisms it will be not the average power that is important, but it is the peak power that can exceed a certain damage threshold. For example, we can comfortably tolerate looking directly at a one watt night-light bulb (1 watt continuous or average power), but if that mere one watt were condensed into a one-thousandth of a second flash, it would have one thousand watts of peak power and would be blinding, like a flashbulb. The average power of a very disorienting strobe light can be low, but its peak power is extremely high. Furthermore, pulses or AM modulation are found to have many more biological effects than continuous wave RF or microwaves.

A third serious misconception: *"EMF/electrical sensitivities are not real because people only imagine that they are sensitive to EMF; they took on EMF sensitivities out of paranoia*

after having heard about them from others; the nocebo effect." In most cases these statements are not true, because the majority of people who become electrically sensitive discovered that they were having puzzling and painful symptoms that **reproducibly correlated** to exposures to electrical devices, **before** they had ever heard of the phenomenon of EMF sensitivity/EHS (Electrical HyperSensitivity). Their first reactions were often disbelief, surprise and shock. Who would choose a sensitivity that would not allow them to use their computer, car, or even their TV? A person would have to be insane to take on EHS thru suggestion. Most of the people reporting EHS are not insane, but astute: they were able to recognize correlations - repeated cause and effect - symptoms worse when exposed to EMF, and symptoms lessened (usually after a lag period) when no longer exposed. There are probably many people who have EHS but do not realize it yet because they are not astute and objective enough to correlate cause and effect.

To summarize:

1. There are many very likely biological mechanisms for non-thermal effects, and it is not necessary to be able to conceive of or to understand a mechanism before acceptance of good evidence.

2. In biology peak power and modulation frequency are important.

3. The evidence for EHS is irrefutable; it is not just anecdotal evidence, it is good science. If someone holds to the belief that EHS is usually the result of a sufferer's imagination or fears, such a belief is itself the result of imagination - unrealistic imagination, untested preconception, and/or vested interest.

Possible mechanisms for non-thermal effects

There are innumerable possible mechanisms, for example: interference with the micro-

movements of biomolecules. Life involves many kinds of tiny structures made up of molecules, and some of these structures, like the cell and nerve membranes, are only a few molecules thick. In the semi-fluid structures of the cell, on the molecular scale everything is moving, vibrating, a dance of life. This motion is part of the functioning of the cell - membranes transporting ions, pores opening and closing, DNA molecules untwisting and replicating, pairs of chromosomes being pulled apart, DNA recoiling into a helix, RNA linking amino acids together into proteins, enzymes combining and splitting molecules. Some of the vibrations are the bending and stretching back and forth oscillations of chemically bonded -OH groups and hydrogen bonded -OH groups in the structured water that is bound to and a critical part of the catalytically active sites on enzymes and other molecules.

When microwave energy having a frequency between about 800 MHz and 3 Gigahertz or more strikes the human body, what do you think happens? Most of it reflects off or goes around you? Not so. The bound water in the cells of the body have dipole oscillators within them: the -OH groups of bound water, and these have a natural resonance at just those microwave frequencies. When a molecule is capable of resonating at the same frequency as incoming energy, it dances to it, and in doing so absorbs through sympathetic resonance the energy of the microwave. Therefore our body absorbs most of the microwave energy that comes to it. Like the water molecules in the food in the microwave oven, whose microwave frequency is 2.54 Gigahertz. What occurs is huge number of individual micro absorptions, ending up with each -OH that resonates in synch with the incoming energy dancing a little faster, and a little differently than before. Bulk heating thermal effects are simply a summation of many "nonthermal" micro-absorptions, but where there is enough energy absorbed quickly enough that heat is generated internally faster than it can be carried to and dissipated at the skin, or at the

surface of the meat in the microwave.

Thus the mechanism of initial/primary microwave absorption by tissue is interaction with biomolecules and is the same at all power levels, both thermal and non-thermal. Therefore the initial effect on biomolecules and membranes is the same regardless of microwave power. It is these local speeding up of vibrations/heating effects that eventually integrate together to result in a bulk temperature rise if the microwave power is high enough.

There are always non-thermal resonance absorption and non-thermal effects at the molecular level. Which of these translate up into any short or long-term negative effects on the organism is the question; but no one can honestly deny that there are non-thermal effects at the molecular level in biological tissues.

Microwaves are non-ionizing radiation. Industry argues that since this radiation cannot ionize anything, it can only have significant biological effects if power levels are high enough to cause bulk temperature rise - the thermal effect. This is a glaringly false statement. The microwaves in themselves don't directly cause ionization or break chemical bonds, but there is a body of research (in the field of organic chemistry) proving that microwaves do in reality affect the activation energy and thereby the rates and the product ratios of many organic chemical reactions. In particular situations, not by causing a temperature rise, but by changing the activation energy of catalysis, as enzymes do. Thus by acting as catalysts or additional catalysts in biochemical and enzymatic reactions in the body, microwaves at non-thermal power levels could very well alter rates of molecular synthesis or breakage, product ratios, and actions of active channels in membranes such as ion pumps and other selective transport mechanisms.

The resonance absorption of energy, when it changes and speeds up the motion of -OH groups at the catalytic site of an enzyme, has been shown to change the activation energy of

enzymes, that is, changes the rate at which they carry out their work (and not by raising the overall temperature) and also the ratios of products of their synthetic actions. This is not unexpected, because structured water is effectively part of the active site, which is doing its own continual dance of, for example, grabbing two small molecules, juggling them together, and releasing a new molecule.

It has been shown that non-thermal levels of EMF interfere with the dance of mitosis, when pairs of chromosomes are being pulled apart by delicate fibers during cell division. Recently the FDA approved electronic equipment for treating cancer that uses EMF non-thermal effects to interfere with tumor cell division in humans.

Other possibilities include effects on the membrane pumps that pump ions selectively through nerve membranes, to maintain the incredibly high 7 Kilovolts per millimeter voltage potential across nerve membrane that allows them to function.All the chemistry, messaging and signaling in the body occurs on the micro-scale. Are you willing to risk the health of your customers by assuming no effects on this dance?

At lower frequencies than the microwave region, small amounts of EMF energy are absorbed by the body through inductive or capacitive coupling, creating small electrical currents in and through different micro-structures. Since electric fields and currents are important in nerve, brain and heart function, among other things, and we still know only such a small percentage of how everything works at that level, are you willing to guarantee to millions of ratepayers that there no non-thermal effects, to bet their health, your health and your family's health on it?

It is extremely unfortunate that the carrier frequency range of cell phones, Wi-Fi, and smart meters is exactly in the microwave region of maximum absorption by the body -

the resonance frequency of water. This microwave energy generally penetrates a few inches deep into living tissue before it is completely absorbed, and it is completely absorbed! Inside us. There is no doubt or argument about this. **Furthermore, the frequencies at which these devices modulate their carrier coincide with the biological frequencies of the heart, brain (EEG) and nervous system - from 1 to about 100 Hertz (cycles per second). How wise is that?**

At the systems level, likely mechanisms of note are entrainment, neural sensitization, kindling and inflammatory cascade. For example, from Wikipedia on sensitization: "sensitization is a non-associative learning process in which repeated administrations of a stimulus results in the progressive amplification of a response."

What about all the research papers and review articles that claim that there are no non-thermal effects, and that the symptoms of ES are not caused by EMF? In general, the current state of research on the effects of non-thermal levels of EMF is in a sorry state. Some experiments have just been poorly designed, and many others have been prostituted for propaganda purposes, including those published in peer-reviewed journals. So far there is little work directly on humans. Laboratory research on human responses to EMF is very difficult to conduct properly and is bound to produce mixed results because there are probably a number of unknown variables. Even the known variables are many and hard to control. Known variables include wide swings in day-to-day sensitivity of test subjects; their previous exposures: foods, allergens, chemical and EMF, and the mix of their exposures; background EMF: levels, type and mixtures, including magnetic or electric, frequency, waveform, pulsed or not, near or far-field, and relative orientation of all fields including of static magnetic field.

Each individual with EHS usually has only a specific frequency range or ranges that they

are sensitive to, which varies from person to person. Furthermore, reaction times to provocation with EMF have a wide range and variability. Each provocation resets the response threshold; it can make the physiological threshold lower (more sensitive) while at the same time making conscious perception of EMF less sensitive, because of being layered on top of a previous reaction that the subject has not yet recovered from. Usually it takes much longer to recover than to react, so only one accurate test point can be obtained per day for many subjects. Symptom thresholds can vary from day to day depending on recent EMF exposures, state of inflammation of the immune system and recent reactions to foods or chemicals. Each person has unique frequency ranges that he/she is most sensitive to. Taking all of these facts into consideration, one can see that it would be difficult to obtain reproducible results unless all these factors are controlled, and they usually are not. Even a very few positive research results mean more than a lot of negative research results, because false negatives are to be expected, and positive results are far less likely to be false.

Two good research papers on human responses are: Wm. Rea 1991 paper *"Electromagnetic Field Sensitivity"* http://www.aehf.com/articles/em_sensitive.html, and D.E. McCarty 2011 paper *"Electromagnetic Hypersensitivity:...."* Int. J. of Neuroscience, 00, 1-7, 2011. Their experiments showed that some persons with EHS can reproducibly sense or have reproducible physiological responses to EMF. But research that relies on objectively measurable physiological and biochemical changes rather than subjective conscious responses would be even more significant and will be more likely to give reproducible and believable results. Unfortunately not much is being done in this area because there is no financial support for such studies. Powerful interests have closed the purse-strings.

In preliminary research on patients in Paris, Dr. Belpomme has found large changes in

blood levels of histamine, melatonin, heat shock proteins, cytokines, other markers of inflammation.

Industry statements that the symptoms of EHS are not due to EMF were published mostly by psychiatrists and psychologists, who in general have the terrible track record of erroneously attempting to appropriate new syndromes or diseases into their territory by "proving" them to be psychosomatic. From Abraham Maslow's *The Psychology of Science*, published in 1966: "It is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail." Or, old Sufi saying: "To him who wears shoes it is as if the whole earth were covered with shoe leather." Much of the denial of EHS is based on "cigarette science" funded by the telecommunications industry, either directly or indirectly. In this field, "science" has become a tool tailored for propaganda purposes. One example of this is the misuse of meta-analyses reviews, including those of James Rubin, and a report recently released by the Public Utility Commission of Texas *"Report on Health and Radiofrequency Electromagnetic Fields from Advanced Meters"*. The latter is pure propaganda.

Non-thermal effects of EMF on humans that are widely researched and accepted are changes induced in EEG and in in sleep patterns, microwave hearing, and interference with cell division (mitosis). Many of the symptoms most commonly reported in the Survey are neurological such as insomnia, headaches and buzzing tones heard in the head, symptoms that very likely would cause (or be caused by) changes in the EEG or microwave hearing. The above discussion about variables and false negatives and real positives also holds true for the animal and in vitro (cell) experiments, and explains why many of them have been difficult to reproduce. Many of the research papers showing non-thermal effects are excellent and others are weak, but the baby should not be thrown out with the bath water, as industry tries to do, with the help of the

numerous highly biased reviews funded by the mobile phone industry, which seem to say: "see no non-thermal effects, hear of no non-thermal effects, stop all research on non-thermal effects".

"An error does not become truth by reason of multiplied propagation, nor does truth become error because nobody sees it." Mahatma Gandhi.

Microwave auditory effect

From Wikipedia, the free encyclopedia:

"The **microwave auditory effect**, also known as the **microwave hearing effect** or the **Frey effect**, consists of audible clicks (or, with modulation, whole words) induced by pulsed/modulated microwave frequencies. The clicks are generated directly inside the human head without the need of any receiving electronic device. The effect was first reported by persons working in the vicinity of radar transponders during World War II. These induced sounds are not audible to other people nearby. The microwave auditory effect was later discovered to be inducible with shorter-wavelength portions of the electromagnetic spectrum. During the Cold War era, the American neuroscientist Allan H. Frey studied this phenomenon and was the first to publish[1] information on the nature of the microwave auditory effect.

Dr. Don R. Justesen published "Microwaves and Behavior" in *The American Psychologist* (Volume 30, March 1975, Number 3).

Research by NASA in the 1970s showed that this effect occurs as a result of thermal expansion of parts of the human ear around the cochlea, even at low power density. Later, signal modulation was found to produce sounds or words that appeared to originate intracranially. It was studied for its possible use in communications. Both the United States and USSR studied its use in non-lethal weaponry.

Pulsed microwave radiation can be heard by some workers; the irradiated personnel perceive auditory sensations of clicking or buzzing. The cause is thought to be thermoelastic expansion of portions of auditory apparatus.[2] The auditory system response occurs at least from 200 MHz to at least 3 GHz. In the tests, repetition rate of 50 Hz was used, with pulse width between 10–70 microseconds. The perceived loudness was found to be linked to the peak power density instead of average power density. At 1.245 GHz, the peak power density for perception was below 80 mW/cm^2. The first American to publish on the microwave hearing effect was Allan H. Frey, in 1961. In his experiments, the subjects were discovered to be able to hear appropriately pulsed microwave radiation, from a distance of 100 meters from the transmitter. This was accompanied by side effects such as dizziness, headaches, and a pins and needles sensation.

Sharp and Grove developed receiverless wireless voice transmission technologies for the Advanced Research Projects Agency at Walter Reed Army Institute of Research, in 1973. In the above mentioned journal entry to The American Psychologist, Dr. Don Justesen reports that Sharp and Grove were readily able to hear, identify, and distinguish among the single-syllable words for digits between 1 and 10 . Justesen writes, "The sounds heard were not unlike those emitted by persons with artificial larynxes." (D.R. Justesen. "Microwaves and Behavior", Am Psychologist, 392(Mar): 391–401, 1975.)

I am aware that the courts prefer to rely only on scientific evidence that has been published in peer-reviewed journals, but in this case, because of the sorry state of much of the peer-reviewed publications, the most relevant (to human beings) and the most honest data, is that provided by the many testimonials of the Survey respondents and of others whose life has been negatively affected by smart meters, by the notarized results of the Smart Meter Health Effects

Survey, and also by my notarized testimony about my own EHS experiences. All of this evidence is extremely current, having been gathered over only the past few months, and there has been no time to publish it yet. In fact the Survey provides some of the best evidence available so far on non-thermal effects in humans. I repeat again that Bradford Hill, in spite of being the originator of *Hill's criteria for causation*, warned against laying down "hard and fast rules of evidence that *must* be obeyed before we accept cause and effect." (Except of course that cause must precede effect.) (From the Proceedings of the Royal Society of Medicine 1965; 58:295-300).

Are there any non-thermal effects that industry and governments accept as real?

The irony is that industry categorically denies any "possible" effects of low (non-thermal) levels of EMF on human beings and at the same time admits (only) that they do affect human brainwaves and sleep patterns (but according to them, these are of "uncertain relevance and mechanistic explanation is lacking" SCENIHR 2009, page 4). They probably also say the same thing about microwave hearing. The FDA has approved EMF cancer treatments for humans that at non-thermal levels have been proven to disrupt mitosis in dividing cells. Is that not significant? Brainwaves that are an averaging of millions of functions of the brain irrelevant? Sleep patterns irrelevant? Any change in brainwaves or sleep patterns could be accompanied by subtle but important underlying modifications in behavior, intelligence, etc. This is no longer science. Neither are insinuations that EMF does not cause the symptoms of EHS but that the causes are psychogenic. Sometimes EMF sensitivities are originally initiated by an EMF exposure, or sometimes by a chemical exposure such as pesticide poisoning, but then repeatedly re-triggered later by "safe" levels of EMF. The evidence for the reality of EHS is triggered by EMF is overwhelming and irrefutable.

Is it not interesting that two of the most common symptoms due to smart meters are directly related to those already accepted as non-thermal effects by almost everyone concerned: insomnia: "sleep patterns and EEG"; hearing tones inside head: "microwave hearing". Many persons who took the survey reported hearing all kinds of tones in their head which correlated with closeness to a smart meter and stopped and started in synchrony with the times that the smart meter was transmitting. Others reported persistent tinnitis, and some a mixture of microwave hearing and tinnitis.

FCC guidelines

A note concerning the FCC exposure limits: Most engineers think only in terms of the FCC thermal limits. As far as the mechanisms of molecular biology are concerned, these limits are untested for safety, and are ludicrous; they are essentially set to avoid cooking meat. With biological effects, it is often not the energy of the messenger that is most important, but the information content of the message itself. The message can have a catalytic effect because it is amplified many orders of magnitude by the systems of the body, first at the molecular level, and then at the organ level. One analogy, sound: there is very, very little actual energy in a whisper, but if someone would whisper a few choice words into your ear conveying a particular message (e.g. cursing you, or horrible news), in less than a second your glands would flood your system with hormones, your pulse rate could double, your blood pressure would rise, etc., etc. We do not yet know what kind of RF (Radio Frequency) information content that the nervous system and biological tissues perceive (through any number of possible mechanisms) as a message, except that pulsed and digital RF is much worse than analog as far as electrical sensitivities is concerned.

Because the FCC bases their standards on thermal-only effects:

1) they select the MPE to be a "safe" amount below the level at which heat buildup would begin to exceed heat dissipation and cause a temperature rise for bulk tissue;

2) they consider their MPE to be a constant (for any one emission frequency) no matter what the actual time of continuous exposure is;

3) they consider only average power density not peak power density, to be the significant value in relation to MPE; and

4) they ignore any possible effects at levels lower than thermal levels.

On the other hand, non-thermal effects are most likely to be related to an exponential power (for example the square or cube) of peak power, as well as to time of exposure. Some countries have adopted their own standards which are far below those of the FCC.

RICHARD CONRAD
EXHIBIT E

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Letter to the Editor: Will We All Become Electrosensitive?

ÖRJAN HALLBERG[1] AND GERD OBERFELD[2]

[1]Hallberg Independent Research, Trångsund, Sweden
[2]Public Health Department Salzburg, Salzburg, Austria

Dear Editor,

Each year an increasing number of people claim to suffer from electrosensitivity (see, e.g., compilation of references given in Table 1), also known as being electrically hypersensitive (EHS). There are also other diseases, such as fibromyalgia and burn-out syndrome, that have symptoms similar to those exhibited by people suffering from electrosensitivity.

In Sweden, electrosensitivity is recognized as a handicap, but there is still controversy surrounding the diagnosis of the disease. The mainstream view by governmental and medical authorities is that this handicap is a psychological phenomenon with no basis in physical or medical mechanisms (Swedish National Board of Health and Welfare, SNBHW, 1995), whereby perpetuating the misconception that only a small fraction of the population is concerned about electrosensitivity or the proximity of new radio transmission masts.

The number of reported cases of electrosensitivity has been steadily increasing since it was first documented in 1991. Data presented here are estimates and are based on large sample inquiries where different sets of questions have been used. To determine whether the statistics indicate a sub-population of electrosensitivity or if the total population is at stake, we plotted reported prevalence estimates over time in a normal distribution diagram (Table 1 and Figure 1).

Contrary to the views of mainstream medical authorities, Figure 1 shows that the group of electrosensitive people around the world, including Sweden, is not just a small fraction that deviates from the rest of the healthy population. Instead, it points at the possibility that electrosensitivity will be more widespread in the near future. The extrapolated trend indicates that 50% of the population can be expected to become electrosensitive by the year 2017.

Data presented here were collected in Austria, Germany, Great Britain, Ireland, Sweden, Switzerland, and the United States.

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EXHIBIT E

Table 1
Estimated prevalence of electrosensitive people in different years and countries

Measured year	% El sensitive	Country, reported year	Ref. No.
1985	0.06	Sweden 1991 (0.025–0.125%)	National Encyclopedia Sw., 1991
1994	0.63	Sweden 1995	Anonymous est., 1994
1995	1.50	Austria 1995	Leitgeb N. et al., 1995, 2005
1996	1.50	Sweden 1998	SNBHW, Env. report, 1998
1997	2.00	Austria 1998	Leitgeb N. et al., 1998, 2005
1997	1.50	Sweden 1999	Hillert L. et al., 2002
1998	3.20	California 2002	Levallois P., 2002
1999	3.10	Sweden 2001	SNBHW, Env. report, 2001
2000	3.20	Sweden 2003	Sw Labour Union Sif, 2003
2001	6.00	Germany 2002	Schroeder E., 2002
2002	13.30	Austria 2003 (7.6–19%)	Spiß B., 2003
2003	8.00	Germany 2003	Infas, 2003
2003	9.00	Sweden 2004	Elöverkänsligas Riksförbund, 2005
2003	5.00	Schweiz 2005	Bern, Medicine Social, 2005
2003	5.00	Ireland 2005	This is London, 2005
2004	11.00	England 2004	Fox E., 2004
2004	9.00	Germany 2005	Infas, 2004
2017	50.00	Extrapolated to 50%	

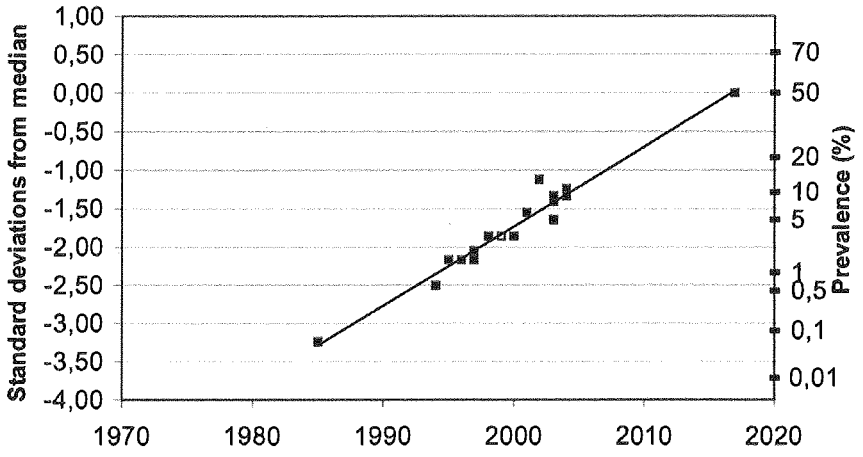


Figure 1. The prevalence (%) of people around the world who consider themselves to be electrosensitive, plotted over time in a normal distribution graph. The endpoint at 50% is an extrapolated value. Variation explained is 91%, the endpoint not included.

RICHARD CONRAD
EXHIBIT E

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Anonymous estimate: 50,000 in 1994.

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Infas – Institut für angewandte Sozialwissenschaft GmbH Friedrich-Wilhelm-Straße 18, 53113 Bonn. Ermittlung der Befürchtungen und Ängste der breiten Öffentlichkeit hinsichtlich möglicher Gefahren der hochfrequenten elektromagnetischen Felder des Mobilfunks–jährliche Umfragen–Abschlussbericht über die Befragung im Jahr 2004.

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RICHARD CONRAD
EXHIBIT F

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

MAR 8 2002

OFFICE OF
AIR AND RADIATION

Janet Newton
President
The EMR Network
P.O. Box 221
Marshfield, VT 05658

Dear Ms. Newton:

Thank you for your letter of January 31, 2002, to the Environmental Protection Agency Administrator Whitman, in which you express your concerns about non-thermal effects of radiofrequency (RF) radiation and the adequacy of the Federal Communications Commission's RF radiation exposure guidelines. The Administrator has asked us to critically examine the issues you bring to our attention, and we will be responding to you shortly.

We appreciate your interest in the matter of non-thermal RF exposure, possible health risks, and Federal government responsibility to protect human health.

Sincerely,

Frank Marcinowski, Director
Radiation Protection Division

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RICHARD CONRAD
EXHIBIT F

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUL 16 2002

OFFICE OF
AIR AND RADIATION

Ms. Janet Newton
President
The EMR Network
P.O. Box 221
Marshfield, VT 05658

Dear Ms.Newton:

This is in reply to your letter of January 31, 2002, to the Environmental Protection Agency (EPA) Administrator Whitman, in which you express your concerns about the adequacy of the Federal Communications Commission's (FCC) radiofrequency (RF) radiation exposure guidelines and nonthermal effects of radiofrequency radiation. Another issue that you raise in your letter is the FCC's claim that EPA shares responsibility for recommending RF radiation protection guidelines to the FCC. I hope that my reply will clarify EPA's position with regard to these concerns. I believe that it is correct to say that there is uncertainty about whether or not current guidelines adequately treat nonthermal, prolonged exposures (exposures that may continue on an intermittent basis for many years). The explanation that follows is basically a summary of statements that have been made in other EPA documents and correspondence.

The guidelines currently used by the FCC were adopted by the FCC in 1996. The guidelines were recommended by EPA, with certain reservations, in a letter to Thomas P. Stanley, Chief Engineer, Office of Engineering and Technology, Federal Communications Commission, November 9, 1993, in response to the FCC's request for comments on their Notice of Proposed Rulemaking (NPRM), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation (enclosed).

The FCC's current exposure guidelines, as well as those of the Institute of Electrical and Electronics Engineers (IEEE) and the International Commission on Non-ionizing Radiation Protection, are thermally based, and do not apply to chronic, nonthermal exposure situations. They are believed to protect against injury that may be caused by acute exposures that result in tissue heating or electric shock and burn. The hazard level (for frequencies generally at or greater than 3 MHz) is based on a specific absorption dose-rate, SAR, associated with an effect

that results from an increase in body temperature. The FCC's exposure guideline is considered protective of effects arising from a thermal mechanism but not from all possible mechanisms. Therefore, the generalization by many that the guidelines protect human beings from harm by any or all mechanisms is not justified.

These guidelines are based on findings of an adverse effect level of 4 watts per kilogram (W/kg) body weight. This SAR was observed in laboratory research involving acute exposures that elevated the body temperature of animals, including nonhuman primates. The exposure guidelines did not consider information that addresses nonthermal, prolonged exposures, i.e., from research showing effects with implications for possible adversity in situations involving chronic/prolonged, low-level (nonthermal) exposures. Relatively few chronic, low-level exposure studies of laboratory animals and epidemiological studies of human populations have been reported and the majority of these studies do not show obvious adverse health effects. However, there are reports that suggest that potentially adverse health effects, such as cancer, may occur. Since EPA's comments were submitted to the FCC in 1993, the number of studies reporting effects associated with both acute and chronic low-level exposure to RF radiation has increased.

While there is general, although not unanimous, agreement that the database on low-level, long-term exposures is not sufficient to provide a basis for standards development, some contemporary guidelines state explicitly that their adverse-effect level is based on an increase in body temperature and do not claim that the exposure limits protect against both thermal and nonthermal effects. The FCC does not claim that their exposure guidelines provide protection for exposures to which the 4 W/kg SAR basis does not apply, i.e., exposures below the 4 W/kg threshold level that are chronic/prolonged and nonthermal. However, exposures that comply with the FCC's guidelines generally have been represented as "safe" by many of the RF system operators and service providers who must comply with them, even though there is uncertainty about possible risk from nonthermal, intermittent exposures that may continue for years.

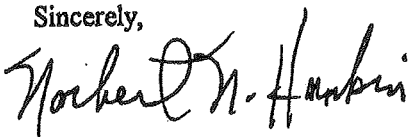
The 4 W/kg SAR, a whole-body average, time-average dose-rate, is used to derive dose-rate and exposure limits for situations involving RF radiation exposure of a person's entire body from a relatively remote radiating source. Most people's greatest exposures result from the use of personal communications devices that expose the head. In summary, the current exposure guidelines used by the FCC are based on the effects resulting from whole-body heating, not exposure of and effect on critical organs including the brain and the eyes. In addition, the maximum permitted local SAR limit of 1.6 W/kg for critical organs of the body is related directly to the permitted whole body average SAR (0.08 W/kg), with no explanation given other than to limit heating.

I also have enclosed a letter written in June of 1999 to Mr. Richard Tell, Chair, IEEE SCC28 (SC4) Risk Assessment Work Group, in which the members of the Radiofrequency Interagency Work Group (RFIAWG) identified certain issues that they had determined needed to be addressed in order to provide a strong and credible rationale to support RF exposure guidelines.

Federal health and safety agencies have not yet developed policies concerning possible risk from long-term, nonthermal exposures. When developing exposure standards for other physical agents such as toxic substances, health risk uncertainties, with emphasis given to sensitive populations, are often considered. Incorporating information on exposure scenarios involving repeated short duration/nonthermal exposures that may continue over very long periods of time (years), with an exposed population that includes children, the elderly, and people with various debilitating physical and medical conditions, could be beneficial in delineating appropriate protective exposure guidelines.

I appreciate the opportunity to be of service and trust that the information provided is helpful. If you have further questions, my phone number is (202) 564-9235 and e-mail address is hankin.norbert@epa.gov.

Sincerely,



Norbert Hankin
Center for Science and Risk Assessment
Radiation Protection Division

Enclosures:

1) letter to Thomas P. Stanley, Chief Engineer, Office of Engineering and Technology, Federal Communications Commission, November 9, 1993, in response to the FCC's request for comments on their Notice of Proposed Rulemaking (NPRM), Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation
2) June 1999 letter to Mr. Richard Tell, Chair, IEEE SCC28 (SC4) Risk Assessment Work Group from the Radiofrequency Radiation Interagency Work Group

Opt outs, the FCC and possible solutions

Should there be opt out fees?

There should be no fees of any kind imposed for opting out of the smart meter grid system, because:

1) Fees are coercive. This is a polite term, because most affected ratepayers prefer the term extortion. Ratepayers are forced to pay in order to avoid actual harm or threat of harm, harm that is a very real probability, as our Survey discovered. Those who have not opted out remain exposed, and we are all susceptible. Many ratepayers cannot afford opt out fees and are forced into RF exposure.

2) No opt out fees should apply to any person who wishes to exercise their right to be cautious and free of exposure to smart meters (since neither industry or government has done it for them), and also no opt out fees should apply to any neighbors of a person with EHS whose residence is located within the same mesh network, nor should they apply to any places of EHS refuge that may wish to opt out. Places of EHS refuge include such places as medical offices, clinics, hospitals, food stores, restaurants, healing centers, and also areas designated as EMF-free to enable persons with EHS to have a place to live without pain and disability.

3) The presence of smart meters has already imposed a huge financial cost (plus other kinds of costs: physical suffering) on persons who have Electrical Hypersensitivity (EHS). Therefore they should not have to bear any more cost in order to escape the pain and disability caused to them by the presence of the smart meter mesh system. Anything short of a completely fee-free opt out is unjust and unduly discriminatory, which is prohibited in the USA by the ADA, and by the Energy Act of 2005. The SURVEY has discovered that smart meters additionally

discriminate against some persons with the following pre-existing conditions (because they exacerbate their symptoms): epilepsy, MCS and a number of autoimmune conditions that affect the nervous system including fibromyalgia, chronic fatigue syndrome and multiple sclerosis.

4) EHS is a physical and very real disability, is in some persons initiated by emissions from the smart meter mesh system, and is re-triggered by exposure to EMF of various kinds, including the emissions from the smart meter mesh system.

5) There is no validity to industry statements that the symptoms of EHS are not due to EMF. These statements and the highly flawed "research" behind them (see below) were published mostly by psychiatrists and psychologists, who in general have the terrible track record of erroneously attempting to appropriate new syndromes or diseases into their territory by "proving" them to be psychosomatic. From Abraham Maslow's *The Psychology of Science*, published in 1966: "It is tempting, if the only tool you have is a hammer, to treat everything as if it were a nail." Or, old Sufi saying: "To him who wears shoes it is as if the whole earth were covered with shoe leather." Much of the denial of EHS is based on "cigarette science" funded by the telecommunications industry, either directly or indirectly. In this field, "science" has become a tool tailored for propaganda purposes. One example of this is the misuse of meta-analyses reviews I refer to in my Exhibit C.

6) Industry and the government have not proven directly that the smart meter mesh system is safe for human beings; they have only by inference and presumption deduced that it is not unsafe. The effects of the smart meter mesh system on persons with previous EHS, and the fact that this system has been initiating EHS in normal persons all over the world, is proof that the smart meter mesh system is definitely not safe for all human beings.

7) Opt outs, with or without fees, are not protective of public health. They only protect those ratepayers surrounded by ample acreage. Those with EHS in suburban or urban density areas are adversely impacted by proximity to neighborhood smart meters and smart grid components.

8) In fact, in light of the points above, and the Survey evidence proving that they are unsafe for a portion of the population, smart meters should be banned altogether (population estimates of those who *know* they have EHS usually run 3-10%. 3% of CMP's 600,000 ratepayers is 18,000 people, hardly inconsequential). Neither industry nor government nor any research or review articles have ever proven that the smart meter mesh system is actually safe for human beings. Instead they presume that the same FCC standards that prevent bulk heating of meat also prevent localized areas of heating in living tissue and thereby prevent damage or harm of any kind to all human beings. Further, they presume that it is only average power that is important and that there is no significant difference in effect between continuous emissions and pulsed emissions (even though there is biological evidence that pulsed emissions are far more damaging than continuous emissions). Then from this they indirectly deduce that since the smart meter mesh system does not expose persons to EMF levels above FCC standards, that this system is safe for human beings.

The FCC and industry make significant erroneous assumptions about smart meter safety

The FCC and industry presumption of smart meter safety relies on eight gross assumptions; they presume that:

1. Dead meat or homogeneous SAR testing media is equivalent to live highly differentiated and structured living tissue (it is not).

2. The only significant heating is bulk heating (they do not take into account localized hot spots and heating at the microscopic level).

3. The only possible mechanism of harm is bulk heating (denying known, proven non-thermal effects).

4. Average power is the important parameter, not peak power (true only for bulk heating).

5. They ignore the difference between continuous and pulsed emissions, and do not consider that there may be effects due to resonance entrainment/neural sensitization/long-term potentiation to particular frequencies of pulse modulation.

6. There is no harm of <u>any</u> type.

7. There is no harm to <u>any</u> human (ignoring susceptible populations).

8. There are no unknown factors, and no possible non-thermal mechanisms (i.e., they presume that they already know everything there is to know about possible effects on humans).

Not a single one of these eight assumptions is true. In fact, some of these assumptions, and also the FCC standards themselves and their use, have been criticized by the EPA in a letter to the FCC (see Exhibit E).

No one who understands both biology and the mechanism of microwave absorption by tissue at the molecular level could honestly say that smart meters are safe. But regardless of any assumptions, or of other arguments based similar "logic", the Survey evidence shows that the smart meter system does indeed trigger painful and disabling symptoms in persons with EHS, and actually does initiate EHS in normal persons of previously excellent health. Some humans are far more susceptible than others, and they must be accommodated; but <u>it is impossible to ascertain in advance which persons are susceptible to becoming EHS from the smart meter</u>

system. If a person does not yet have a smart meter installed on their residence, they have no way of knowing in advance whether or not they will become one of the unfortunate ones.

Similar to airline passengers trapped inside a cabin with no other air to breathe, persons with EHS are becoming trapped no matter where they live or travel. Many airlines have banned peanuts on their flights because a tiny percentage of the population has a severe allergy to peanut dust (and before the peanut ban these allergic persons could choose not to fly). But persons with EHS have no similar choice because smart meters are becoming ubiquitous and are impossible to shield. One man's pleasure is another man's pain, and if you are blanketing the whole earth with something, the well-being of the whole population must be taken into consideration. The whole earth is being covered with smart meters. At least hundreds of thousands of people are already suffering from them, and have no place to go to escape. You don't want to force normal persons to be exposed to a sensitizer, something that has a definite probability of causing them to become sensitized. You don't want to force already sensitized persons to have something on their homes that they are already sensitized/allergic to.

Recommendations for public health officials, regulators and utilities

Do no harm, do the right thing, listen to the people. Listen to the people and their suffering, not to the intentionally deceptive propaganda of industry that claims ES is not caused by EMF and that non-thermal effects are impossible. Give priority to the survey results. Consider the people's evidence carefully. The Survey is your first real smart meter "safety" study. It side-steps the propaganda. Don't be seduced by propaganda written by the blind men (with thick gloves on no less) feeling the elephant and pretending to describe it. The only real experts in EHS are those scientists who have it themselves.

Follow the example of the peanut ban on airlines and do the only right thing: ban all smart meters now, before even more people become sensitized. "Balancing" short-term stockholder profits against kindness and fairness to humans would be a huge mistake resulting in enormous long-term loss to stockholders, in addition to much more suffering for ratepayers.

Big blunders (too big a step "forward" without prior testing and honest assessment of risk) require a big correction. We are now beyond probability of risk into certainty of risk. The Survey results are a wake-up call to reality. It is not possible to honestly counter or "balance" the Survey by citing any publications claiming otherwise.

It is hard to prove that cancer will be caused in 20 years by a cell phone, or that a present cancer was caused by a cell phone. The case of smart meters is entirely different. This is not a hypothetical or marginal situation where smart meters may or may not increase the rate of cancer or other diseases in 10 or 20 years. Smart meters are doing immediate physical harm to real and astute people in the present time; they are a classic "smoking gun": a still present and warm piece of evidence that clearly connects the dots, that provides proof that a scientific hypothesis is true or that someone is responsible for a crime. The utilities are still holding the gun in their hands, and it is still smoking. Electrical hypersensitivity is real, and smart meters are torturing people.

The Survey has also shown that smart meters are particularly discriminatory against persons with Fibromyalgia, Chronic Fatigue Syndrome, Toxic Encephalopathy, and Multiple Chemical Sensitivity and various auto-immune conditions, as well as against people with ES. Preliminary research (Dr. BelPomme in Paris) has indicated that exposure to EMF can cause elevated histamine levels, lowered melatonin, high heat shock protein, and elevated cytokines and other markers of inflammation. If you want more data on the latter, well, then sponsor

unbiased research, with no strings attached.

The Survey results warrant adopting not a mere wait and see (while more damage occurs) attitude, but warrants immediate preventative action. Any statements that the symptoms of ES are not initiated by smart meters is equivalent to saying that the earth is flat and is the center of the universe. So far the damage has been inadvertent, unintentional. Now you have been publicly warned, and can no longer hide behind the FCC guidelines. From this point onward you will be held fully responsible for any damage smart meters do to humans, and for your decisions, actions and inactions.

Be sure to read through the text of comments by Survey respondents, which are their answers to Survey Question #46: short summaries of the impacts smart meters have had on their lives.

Denial works for a while. But eventually reality forces its way through. The longer you wait, the harder you fall. Do the right thing. "First, do no harm." Let kindness be the basis for your deliberations and actions; any other priority will result in your actions going down in history as mistakes. Don't proceed with the implementation of short-sighted plans that are ostensibly for decreasing greenhouse gases. Don't put short-term stockholder profits in front of biocompatibility. Don't proceed with technology that produces collateral damage to humans who are predisposed to electrical sensitivity through no fault of their own. Listen to the survey evidence from the people. Smart meters are not safe. This is not mere anecdotal evidence or a false alarm. Any technological "solution" that causes physical suffering to even a small percentage of the population is unacceptable, especially if there is another way to solve the problem. And there always is another way. It takes courage to act with foresight and wisdom.

Take courage and do the right thing. You will be held responsible if you don't. The more denial now, the more repercussions later. Class action lawsuits are already forming against smart meters. *"First they ignore you, then they laugh at you, then they fight you, then you win."* Mahatma Gandhi.

Specific suggested solutions

1. A decision to immediately ban all smart meters of present design is the only conscientious course of action in light of the results of the Smart Meter Health Effects Survey. (Either that or set up whole cities of refuge.)

2. Reassess the real needs of the grid as far as reporting by smart meters, and this time include immunity to hacking, the need for privacy, personal rights/freedom of choice and all types of safety.

3. Fund/conduct unbiased research to determine what it is about smart meters that makes them so sensitizing.

4. Use the findings of this research to develop new designs that are safe for everyone, even the electrically sensitive and those predisposed to becoming electrically sensitive.

5. Carry out extensive testing of the new devices for biocompatibility and safety before implementation this time.

Steps 2 through 5 above should be overseen by a specially appointed board of experts who are committed to complete transparency and includes biologists, biophysicists and engineers who themselves have ES.

Actions and costs

Opt-outs are not adequate. Not even if free. What is required is:

1. An immediate halt to all smart meter deployment.

2. No further opt-out fees, and a refund of all opt-out fees collected in the past.

3. Immediate replacement of smart meters with analogue meters for anyone who requests it, including for at least a 200 foot radius around that person's residence if they ask for it.

4. Eventual replacement of all smart meters with either analogue electromechanical meters, or with a new type of meter design that has been pre-approved by biologists who understand the needs of persons with ES.

5. All costs for the blunder and its reversal should be borne solely by the corporations and their shareholders, because the responsibility for the blunder rests solely on the corporations, and it would be entirely unfair for ratepayers to be assessed for it. The costs should be taken from profits and out of the salaries of the executives who made or went along with unwise policy.

EXHIBIT D – Smart Meter Health Effects Survey and Report



Nearly 98% of respondents were very sure or fairly sure their new or worsened symptoms correlated to smart meter exposure.

CONRAD-EXHIBIT D

Smart Meter Health Effects Survey: Results, Analysis and Report

This survey was designed to discover if the health effects/symptoms that many persons have been attributing to smart meter exposures were really caused by those exposures or not. The survey essentially collected testimonials of personal experiences with smart meters, broken down into answers to approximately 50 questions, most of them multiple-choice. Since all questions required an answer, all respondents answered identical questions via a choice of identical answers. This provided uniformity of the data collected, enabling detailed analysis and comparison of their experiences.

The survey was written by Richard Conrad, Ph.D, and Ed Friedman. It utilizes SurveyGizmo software and automatic survey collection via the internet and SurveyGizmo, who stores the data securely and provides most of the analysis tools used. The survey was distributed via internet sites and interest groups, who directed interested people to this link: http://www.conradbiologic.com/smartmetersurvey.html for an introduction, more information, and a link to actually take the survey. The invitation began: "If you feel your health has been affected by smart meters, we request your immediate help in studying these effects." Thus this is not a prevalence survey (i.e. its purpose is not to determine the percentage of all ratepayers that had symptoms) but was intended to query persons who already felt that they had "symptoms or health effects from smart meters" (quoted here from the introduction within the survey itself) to determine whether or not there actually was a correlation.

Near the end of the survey was a request (Question 46) for free text comments, where many respondents provided a short summary of the impacts smart meters had on their lives. (A list of most of their comments is included in Appendix 6.) The last two questions of the survey concern permission to use their data anonymously (Q47) and with limited confidential disclosure (Q48). Any respondent that answered No to Q47 was automatically disqualified by the SurveyGizmo survey collection software. Thus 100% of the surveys collected and designated as "completed" answered Yes to permission for anonymous use. 90% of these also answered Yes to Q48, limited confidential disclosure (most supplied their personally identifiable information).

The Survey opened for data collection on December 4, 2012, and closed at the end of the day on January 28, 2012. The number of completed surveys received and used for analysis was 210.

Approximately 75 % of respondents were from the US, and the rest from Canada and Australia.

Of the 210 respondents, 9 were Ph.D.'s, 42 MS or MA, 70 BS or BA, 1 MD, 1 DDS (see Q44).

Look at "Pie Chart Summary Report Q2 vs Q32" (Appendix 8). You can clearly see the tremendous increase (more than a doubling) in the blue sector of the pie chart from only 32.9% aware of having some electrical sensitivity before, to 67.6% considering themselves to actually have ES after smart meter exposure.

Before smart meters, 23.3 % (calc. from Q2a) of the 210 respondents considered themselves to

have ES (Electrical Sensitivity).

Now, after smart meters, 67.6 % (Q32) of the 210 respondents consider themselves to have ES. Note that the majority of these (62.7 %, calc. from Q32a) feel certain that their exposure to smart meters was responsible for initiating their ES.

Of the 49 persons who already considered themselves to have ES before SM, all 49 (100 %) felt that their exposure to SM made their ES not only worse, but "much worse".

Cell Phone, Computer and WiFi Use Before and After Smart Meters

In order to ascertain the effect smart meter installation had on respondents' ability to use common electronic devices: cell phones, wifi and computers, we looked at device use before and after smart meters. We found very clear evidence that smart meter exposure adversely affected respondents ability to use other RF devices without incurring harmful symptoms. In the survey, computer use is addressed in questions 4 and 29, wifi in questions 5 and 30 and cell phones in questions 6 and 31 (Appendix 7).

Computer Use:
Before smart meters, nearly 79% of respondents were using computers without symptoms while about 20% were using computers despite having symptoms from computer use. Following smart meter exposure, those able to operate a computer without symptoms dropped (from 79%) to 39% (about one-half of before), while those showing symptoms from computer use nearly tripled (from 20%) to 57%.

WiFi Use:
Before smart meters, about 40% of respondents were using wifi without symptoms. 11% were using wifi but with symptoms from it, and 17% were not using wifi because it had caused symptoms in the past. Following smart meter exposure, those able to use wifi without symptoms dropped (from 40%) to 18% (less than one-half of before) while those continuing to use wifi but with symptoms from it nearly tripled (from 11%) to 28%. The number of respondents who could not use wifi at all because of symptoms more than doubled (from 17%) to 41%.

Cell Phone Use:
Before smart meters 50% of respondents were using cell phones without symptoms, while 18% used cell phones but with symptoms. 14% of respondents did not use cell phones because of symptoms. Following smart meters, those able to use cell phones without symptoms dropped (from 50%) to 24% (about one-half of before), and those with symptoms from cell phone use more than doubled (from 18%) to 39%. After smart meters, those who did not use cell phones at all because of symptoms nearly doubled (from 14%) to 26%.

Obviously the inability to use these modern tools severely inhibits our respondents in their personal and economic lives. Their ability to live normal lives in the 21st century has been severely compromised. This change in ability to use these devices is directly correlated to smart meter exposure.

Symptoms, New and Worsened, Correlated to Smart Meter Exposure

Our survey asks respondents to identify, from a list of 21 symptoms, the ones they found to be associated with their smart meter exposure. We also allowed space for respondents to write in other symptoms they felt were associated with smart meters. Specifically we wanted to know *what* their symptoms were, their *intensity*, and which symptoms were *new* (never before experienced) to them since smart meters and which ones were previously experienced symptoms that were *worsened* by smart meter exposure.

We found fourteen symptoms that many individuals suffered in common including ear ringing, headaches, difficulty concentrating, insomnia and heart arrhythmias. Many of these same symptoms have been cited in previous literature on low level RF and for example in the EMF Safety Network Survey (also submitted in our PUC testimony). We highlight the main symptoms in the attached histograms (Appendices 2 & 3).

How long can you go without sleep, how well can you respond to workplace and personal situations and stressors when having cognitive difficulties, how much pressure in your head must you tolerate? While any of these symptoms by themselves on occasion may be of little consequence, taken in combination and at a severe level they are quite enough to force people from their homes and from their work place. Here there is no 10-30 year latency period as there may be from cell phone exposure to diagnosis of glioma, instead the devastating results are essentially immediate.

In our histogram showing "severe and new" and "moderate and new" (Appendix 3), it is extremely important to note that all of the numbers report only *new* symptoms, that is, symptoms suffered for the first time in their lives, symptoms they had never experienced before smart meters. The *red bars* indicate symptoms from which respondents suffered after smart meter installation which were *new* and were *severe in intensity*; insomnia, tinnitus, pressure in the head and difficulty concentrating top the list. The *blue bars* indicate symptoms that were *new* and were *moderate in intensity*. Pressure in the head, difficulty concentrating, tingling/burning skin and vision problems are the most common new moderate symptoms in descending order. Taken together, red and blue bars show the total number of victims suffering from severe or moderate intensity of each symptom: pressure in the head, difficulty concentrating and tinnitus being the most common.

The histogram with only blue bars (Appendix 2) shows previous symptoms that *worsened to severe intensity* (from either mild or moderate intensity) following smart meter exposure. Fatigue, insomnia, difficulty concentrating and headaches top this list. (The data shown in the histograms were extracted from an analysis of data shown in Appendix 4 and Appendix 5.)

It's important to reiterate as documented elsewhere in this survey: *most of our respondents (82%); were in good or excellent health before smart meters were installed and 42% of them developed symptoms prior to any knowledge of the presence of smart meters*.

Some detailed analysis of data presented in the pie charts and tables of Appendix 1:

Thread 1: a filtered, or "thread" analysis of Q1 and Q3 and Q17:
the number of respondents reporting initial excellent or good health, and who had no prior

concerns about EMF from smart meters, and who began to experience their new/worsened symptoms BEFORE they discovered the smart meter, totaled 48, or 22.9 % of the 210 respondents.

Thread 2: another filtered analysis of Q1 and Q3 and Q17:
the number of respondents reporting initially excellent or good health, and who had no prior concerns about EMF from smart meters, and who began to experience their new/worsened symptoms weeks or months AFTER they discovered the smart meter, totaled 20, or 9.5 %.

32.4 %, or almost one-third of the 210 respondents were *initially healthy*, had no prior concerns about EMF from smart meters, and *began to experience symptoms at a time* (before discovery of SM or well after discovery of SM) *indicating their symptoms did not develop due to any knowledge of or concern about smart meters.*

Thread 3: a filtered analysis of Q2a and Q17:
the number of respondents who considered themselves ES before smart meters, and who began to experience their new/worsened symptoms BEFORE they discovered the smart meter, totaled 19, or 9 % of the 210 respondents.

Thread 4: another filtered analysis of Q2a and Q17: the number of respondents who considered themselves ES before smart meters, and who began to experience their new/worsened symptoms weeks or months AFTER they discovered the smart meter, totaled 2, or 1 % of respondents.

The before: after ratio in threads 3 and 4 is 9.5 (19/2), whereas in threads 1 and 2 it is only 2.4 (48/20). This indicates symptoms developed much, much more rapidly in the persons who had ES prior to smart meters, as might be expected since they were already sensitive to EMF.

From Q18: *A total of 98.6 % of the 210 respondents were sure that their new/worsened symptoms correlated to smart meter exposure* (breakdown of this total: 81.9 % very sure and 16.7 % fairly sure).

Q19 shows that for 83 % of the respondents, the smart meter had been between 4 and 50 feet from a location in their home where they spent most of their time (27.6 % were actually between 20 and 50 feet; the table gives the exact breakdown).

Q20 shows that for more than 2/3 of respondents, symptoms lessened when they went further from SM; most in seconds, minutes or hours, with the majority in hours.

Q21 shows that for about 2/3 of respondents, when they went closer to SM, their symptoms worsened, with the majority in seconds.

Q22 shows that 53.8 % of respondents conducted the “experiments” described in Q20 and Q21 “more than a dozen times”.

Q23 shows that 48.1 % were the only ones affected (sometimes because they were the only person in the house, see Q24), and that in the case of 51.9 % of respondents, between 2 to more than 6 others in the house were affected.

Q25, 25a, 26 and 26a show that there were no known other sources of EMF other than the smart meters that corresponded to their symptoms.

Q27a shows that in 91.1 % of the cases where all smart meters were removed, symptoms weakened or disappeared completely.

Q28 and 28a show that 77.1 % of those who moved, did so because of smart meters, and that some of those are currently homeless, and many others want to move because of smart meters but can't.

Q37, 38 and 39 are self-explanatory.

Q40 and 41 show pre-existing MD diagnosed conditions that were worsened by smart meter exposure, and new MD diagnosed conditions that only appeared after exposure to smart meters, i.e., that were initiated by SM. *At the top of the list of new conditions diagnosed by an MD after SM (and initiated by SM) are cardiac arrhythmia and other heart conditions.*

The suffering and the social and economic effects of chronic debilitating symptoms victims have experienced since smart meter exposure simply cannot be ignored, and provide ample evidence there is something about smart meters making them extremely harmful to at least some, and possibly eventually to all persons. While there is obviously only a portion of our population consciously realizing and manifesting ES/EHS symptoms at present (the canaries), everyone is being exposed. No one knows whether or not they or a family member is predisposed towards developing electrical sensitivities. Predisposition does not depend on opinions, beliefs, background or occupation. At this point, exposure to a smart meter is like playing Russian roulette.

Maine Smart Meter Health Effects Appendices for Exhibit D

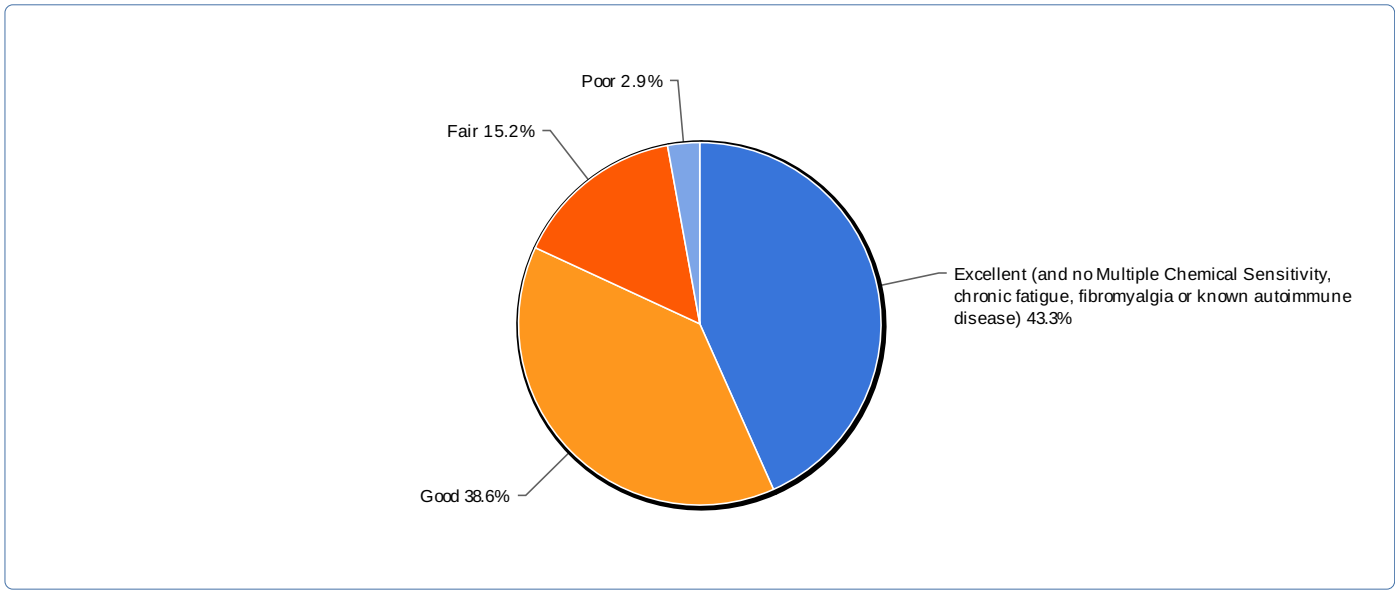
Appendix 1	Maine Smart Meter Effects Survey Report-Pie Charts	Page 7
Appendix 2	Symptoms Histogram: Severe & Worsened	Page 60
Appendix 3	Symptoms Histogram: Severe, Moderate & New	Page 61
Appendix 4	Symptoms after Exposure-Combined Q15A & B	Page 62
Appendix 5	Symptoms after Exposure-Totals	Page 63
Appendix 6	Respondent Comments Q46	Page 65
Appendix 7	Other RF Devices-Pie Chart Comparisons	Page 97
Appendix 8	Electrosensitivity Before & After Meters	Page 100
Appendix 9	Blank Survey	Page 101

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Online Surveys, Data Collection and Integration
www.SurveyGizmo.com

Summary Report, all Q's except Symptoms Q15 and open textbox Q's - Jan 31, 2013

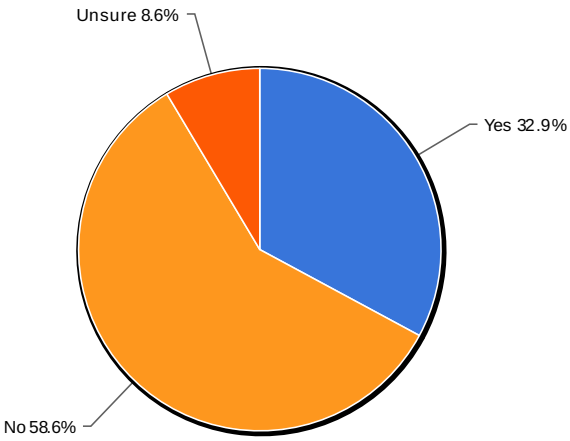
Survey: Smart Meter Health Effects Survey (Live Dec. 4, 2012)



1. Before smart meters, what was the general state of your health?

Value	Count	Percent %
Excellent (and no Multiple Chemical Sensitivity, chronic fatigue, fibromyalgia or known autoimmune disease)	91	43.3%
Good	81	38.6%
Fair	32	15.2%
Poor	6	2.9%

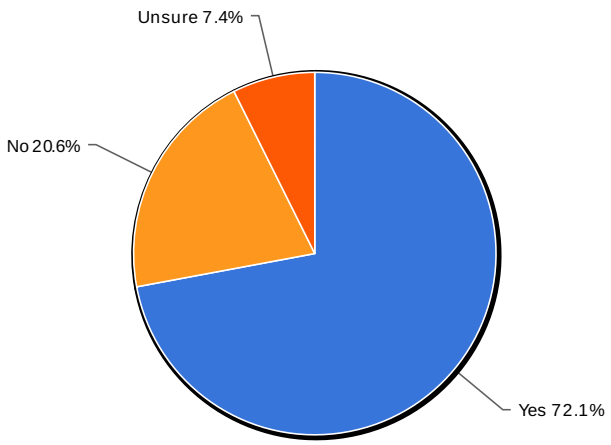
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



2. Before smart meters, did you have any electrical sensitivity that you were aware of?

Value	Count	Percent %
Yes	69	32.9%
No	123	58.6%
Unsure	18	8.6%

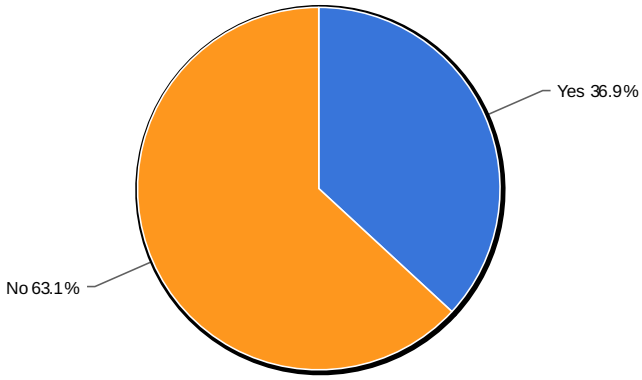
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



Before smart meters, did you consider yourself to have ES (Electrical Sensitivity)?

Value	Count	Percent %
Yes	49	72.1%
No	14	20.6%
Unsure	5	7.4%

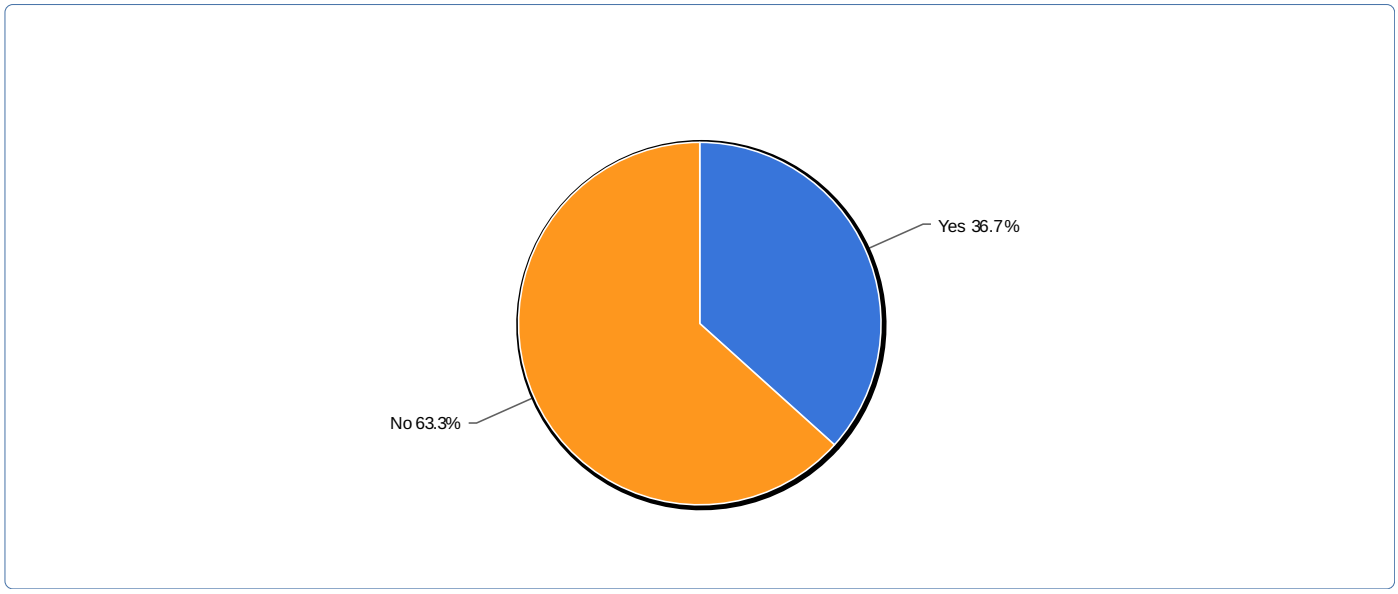
Statistics	
Total Responses	68
Skipped	0
Unanswered	142



Before smart meters, had you ever heard of electrical sensitivity?

Value	Count	Percent %
Yes	52	36.9%
No	89	63.1%

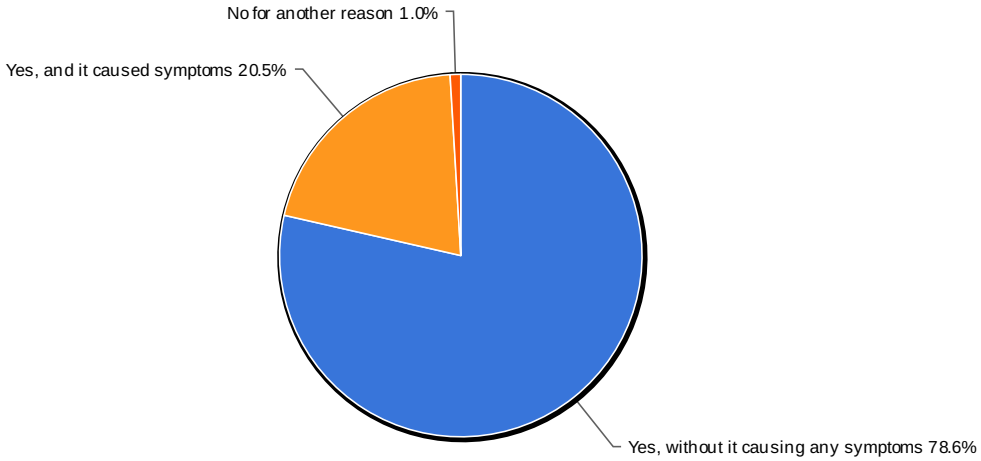
Statistics	
Total Responses	141
Skipped	2
Unanswered	69



3. Before smart meters, did you have any concerns about EMF (Electromagnetic Fields) from smart meters?

Value	Count	Percent %
Yes	77	36.7%
No	133	63.3%

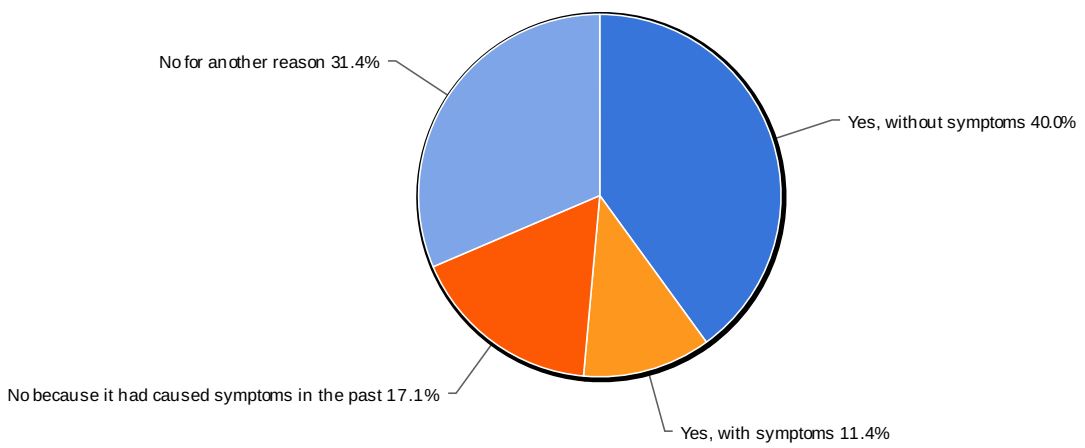
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



4. Before smart meters, were you using a computer?

Value	Count	Percent %
Yes, without it causing any symptoms	165	78.6%
Yes, and it caused symptoms	43	20.5%
No because it had caused symptoms in the past	0	0.0%
No for another reason	2	1.0%

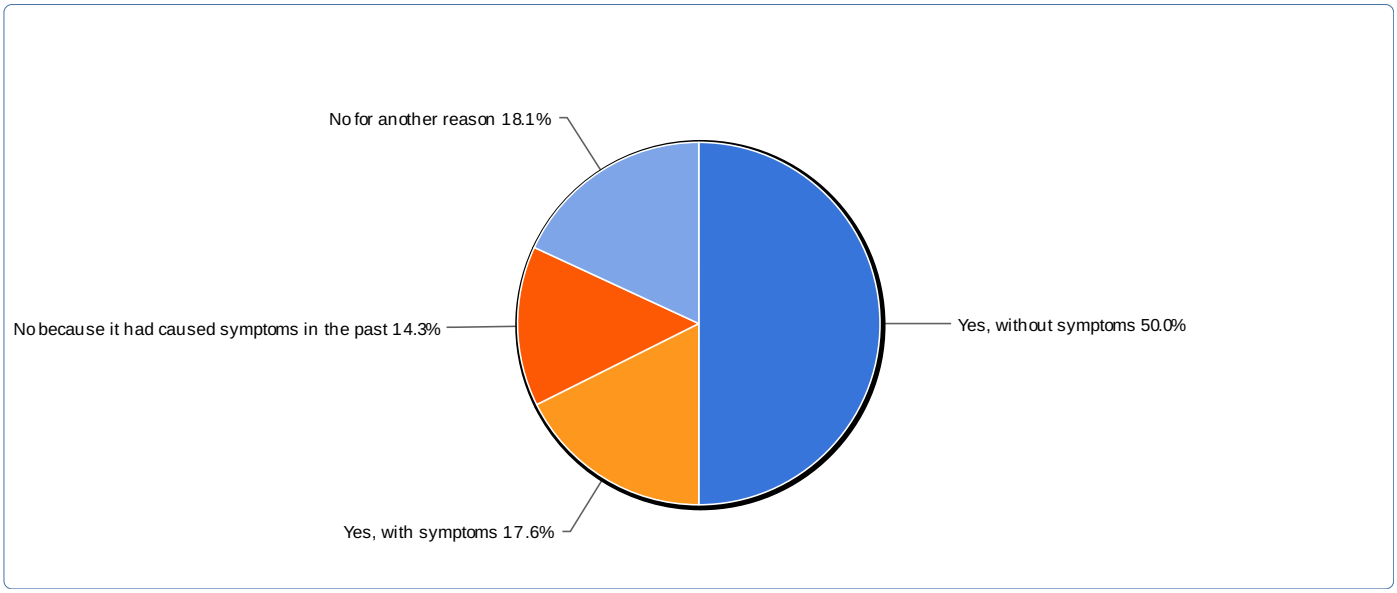
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



5. Before smart meters, were you using Wi-Fi?

Value	Count	Percent %
Yes, without symptoms	84	40.0%
Yes, with symptoms	24	11.4%
No because it had caused symptoms in the past	36	17.1%
No for another reason	66	31.4%

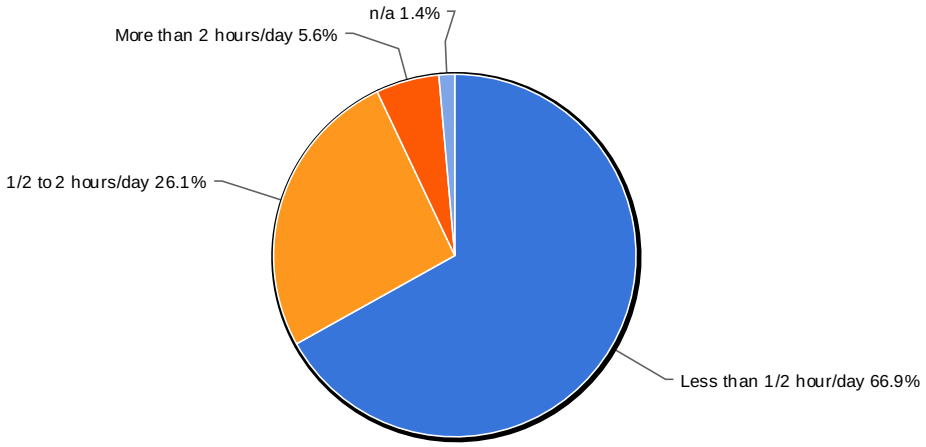
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



6. Before smart meters, were you using a cell phone?

Value	Count	Percent %
Yes, without symptoms	105	50.0%
Yes, with symptoms	37	17.6%
No because it had caused symptoms in the past	30	14.3%
No for another reason	38	18.1%

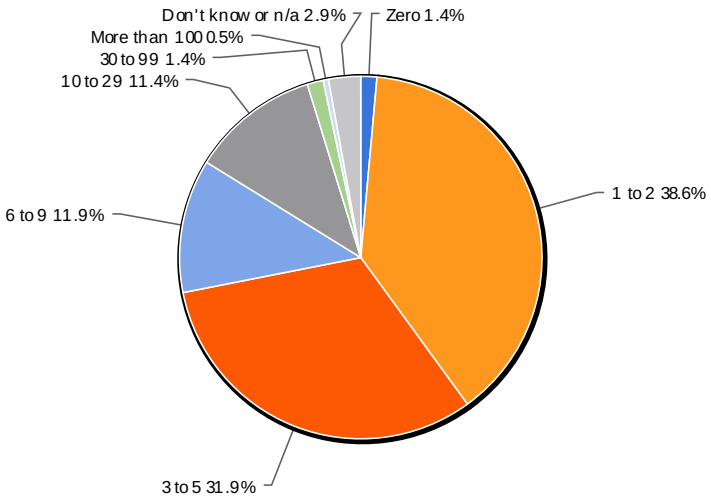
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



If you were using a cell phone, how would you characterize your cell phone usage?

Value	Count	Percent %
Less than 1/2 hour/day	95	66.9%
1/2 to 2 hours/day	37	26.1%
More than 2 hours/day	8	5.6%
n/a	2	1.4%

Statistics	
Total Responses	142
Skipped	0
Unanswered	68



7. Roughly what was the total number of smart meters within about a 50 foot radius around your residence, including those (if any) on your residence? (Please review your selection to be sure it is correct.)

Value	Count	Percent %
Zero	3	1.4%
1 to 2	81	38.6%
3 to 5	67	31.9%
6 to 9	25	11.9%
10 to 29	24	11.4%
30 to 99	3	1.4%
More than 100	1	0.5%
Don't know or n/a	6	2.9%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

8. How many of these smart meters were on your residence (or on your building and relatively close to you)? (Select "Zero" if none).

Electric

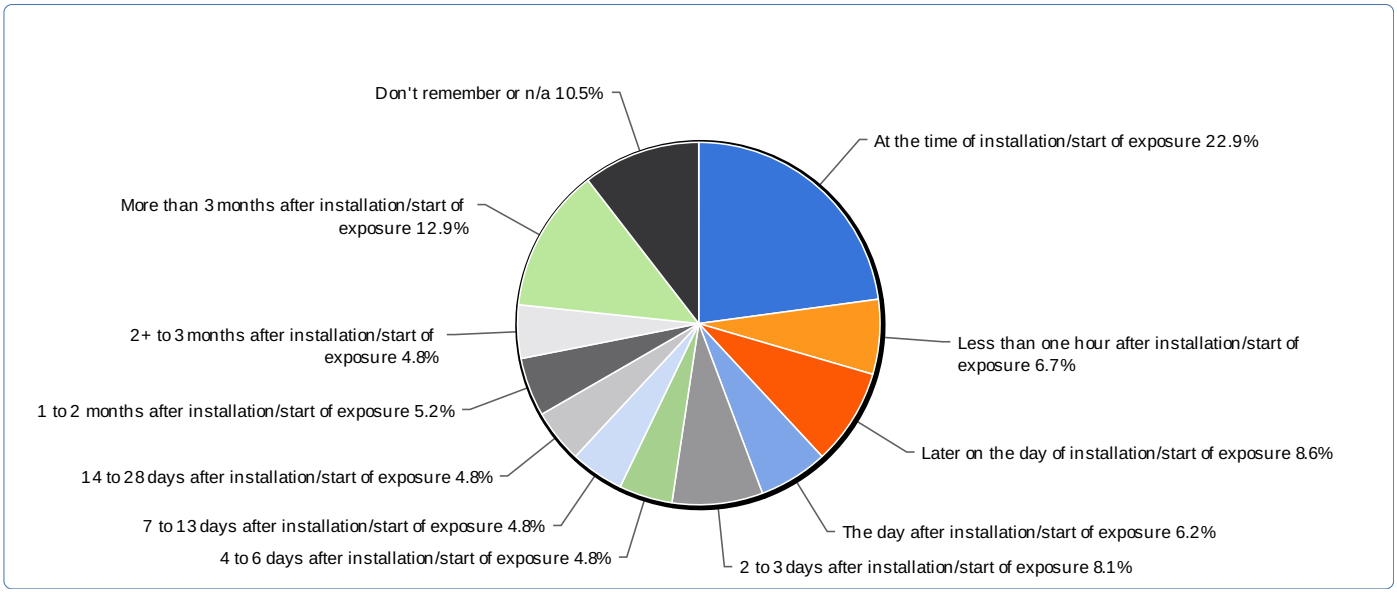
	Number of Smart Meters	Total
Zero	**20.5%** 43	**20.5%** **43**
1	**50.5%** 106	**50.5%** **106**
2	**11.0%** 23	**11.0%** **23**
3	**2.9%** 6	**2.9%** **6**
4 to 5	**4.8%** 10	**4.8%** **10**
6 to 9	**3.8%** 8	**3.8%** **8**
10 to 29	**4.8%** 10	**4.8%** **10**
30 to 99	**0.5%** 1	**0.5%** **1**
Don't know or n/a	**1.4%** 3	**1.4%** **3**
Total	**210**	**210**

Water

	Number of Smart Meters	Total
Zero	**74.2%** 155	**74.2%** **155**
1	**9.1%** 19	**9.1%** **19**
2	**1.0%** 2	**1.0%** **2**
4 to 5	**1.4%** 3	**1.4%** **3**
6 to 9	**1.0%** 2	**1.0%** **2**
Don't know or n/a	**13.4%** 28	**13.4%** **28**
Total	**209**	**209**

Gas

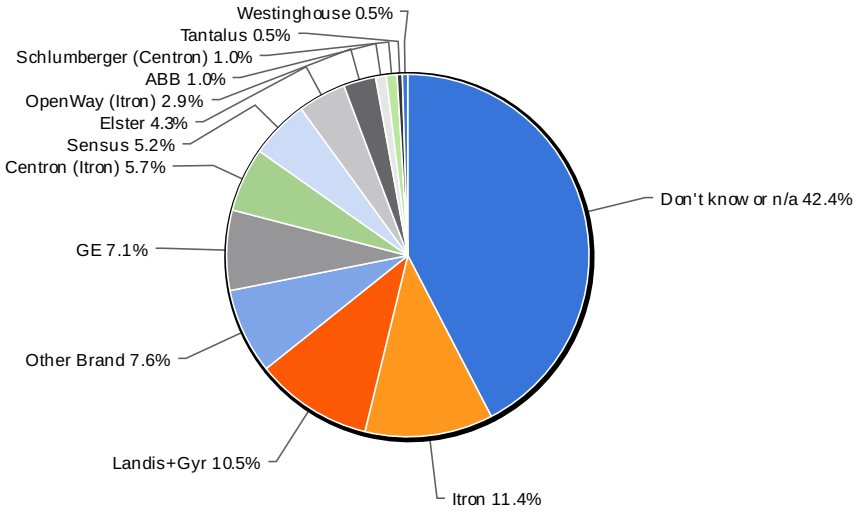
	Number of Smart Meters	Total
Zero	**70.3%** 147	**70.3%** **147**
1	**16.3%** 34	**16.3%** **34**
2	**1.0%** 2	**1.0%** **2**
3	**0.5%** 1	**0.5%** **1**
4 to 5	**1.0%** 2	**1.0%** **2**
6 to 9	**1.4%** 3	**1.4%** **3**
10 to 29	**0.5%** 1	**0.5%** **1**
Don't know or n/a	**9.1%** 19	**9.1%** **19**
Total	**209**	**209**



9. Concerning only the smart meter(s) that most affected you, about how long after smart meter installation or after beginning of exposure, did you discover that the smart meter was present (by actually seeing it or being told about it)?(Please read the answer that remains in the dropdown menu box after you make your selection, to be sure it is correct).

Value	Count	Percent %
At the time of installation/start of exposure	48	22.9%
Less than one hour after installation/start of exposure	14	6.7%
Later on the day of installation/start of exposure	18	8.6%
The day after installation/start of exposure	13	6.2%
2 to 3 days after installation/start of exposure	17	8.1%
4 to 6 days after installation/start of exposure	10	4.8%
7 to 13 days after installation/start of exposure	10	4.8%
14 to 28 days after installation/start of exposure	10	4.8%
1 to 2 months after installation/start of exposure	11	5.2%
2+ to 3 months after installation/start of exposure	10	4.8%
More than 3 months after installation/start of exposure	27	12.9%
Don't remember or n/a	22	10.5%

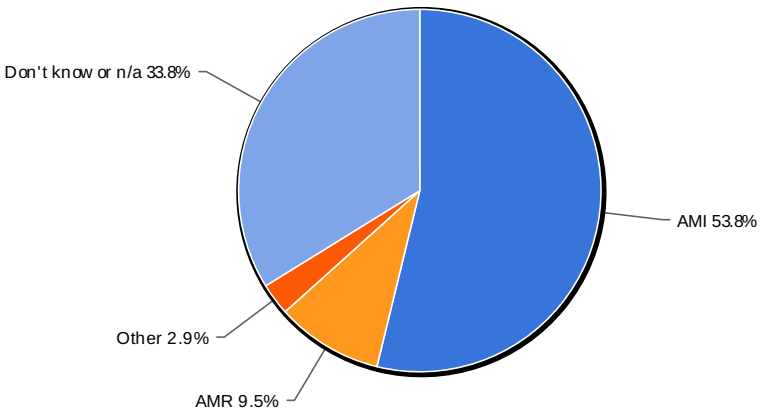
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



10. What was the Brand/Manufacturer of the closest Electric smart meter?

Value	Count	Percent %
Don't know or n/a	89	42.4%
Itron	24	11.4%
Landis+Gyr	22	10.5%
Other Brand	16	7.6%
GE	15	7.1%
Centron (Itron)	12	5.7%
Sensus	11	5.2%
Elster	9	4.3%
OpenWay (Itron)	6	2.9%
ABB	2	1.0%
Schlumberger (Centron)	2	1.0%
Tantalus	1	0.5%
Westinghouse	1	0.5%
Siemens	0	0.0%

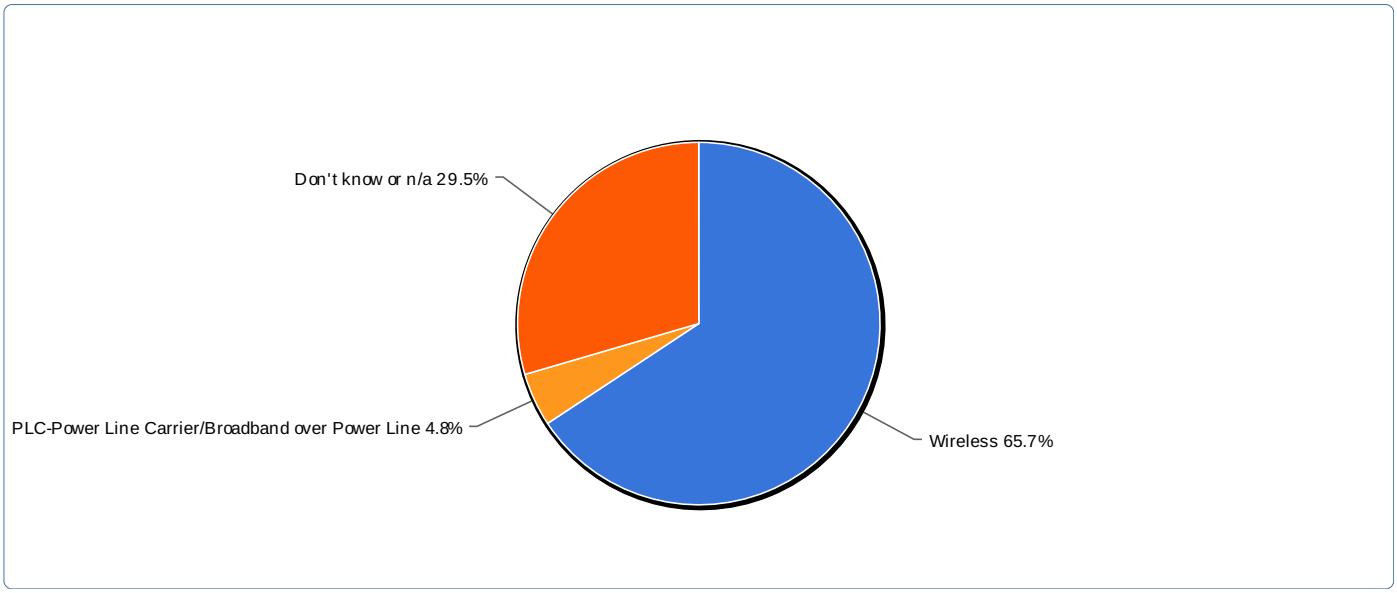
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



11. What was the TYPE of the closest Electric smart meter? AMI = Advanced Metering Infrastructure type of meter (data automatically sent to utility), AMR = Automated Meter Reading type of meter (data read remotely by reader from vehicle or on foot)

Value	Count	Percent %
AMI	113	53.8%
AMR	20	9.5%
Other	6	2.9%
Don't know or n/a	71	33.8%

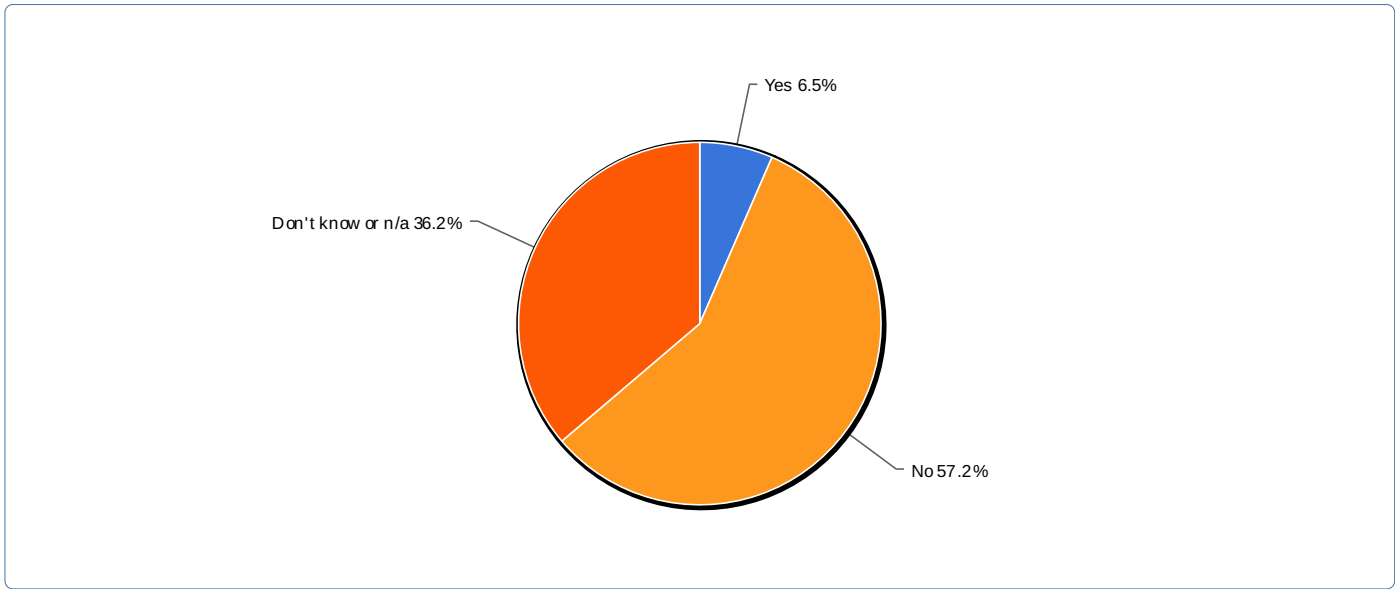
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



14. Which method of data reporting to the Utility did the Electric smart meter use?

Value	Count	Percent %
Wireless	138	65.7%
PLC-Power Line Carrier/Broadband over Power Line	10	4.8%
Phone line	0	0.0%
Fiber optics	0	0.0%
Don't know or n/a	62	29.5%

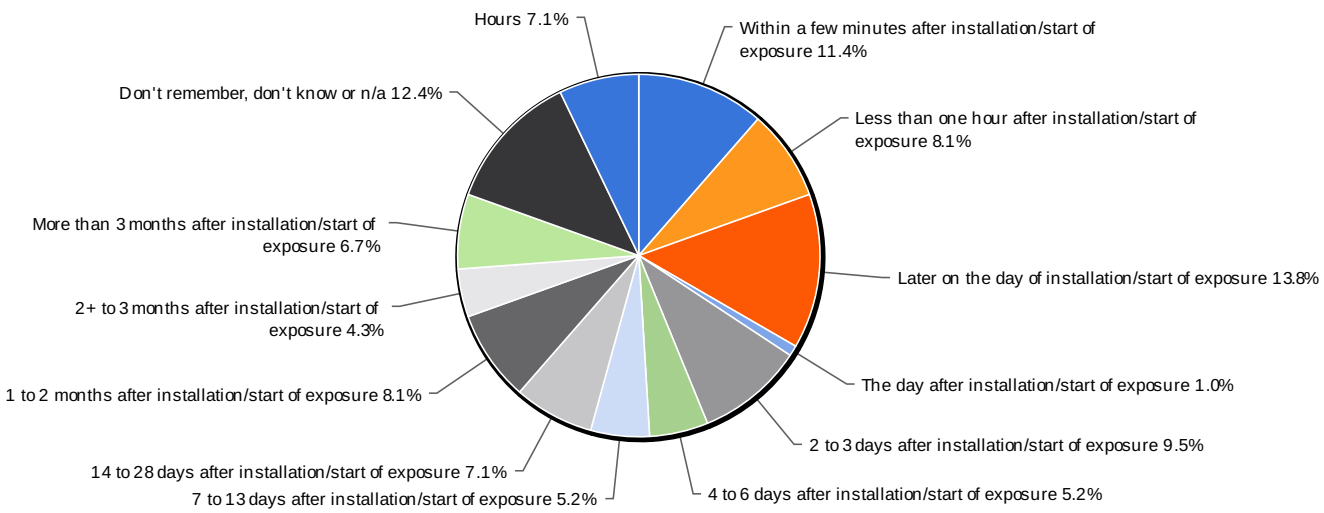
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



If wireless, were the transmitters supposedly turned off?

Value	Count	Percent %
Yes	9	6.5%
No	79	57.3%
Don't know or n/a	50	36.2%

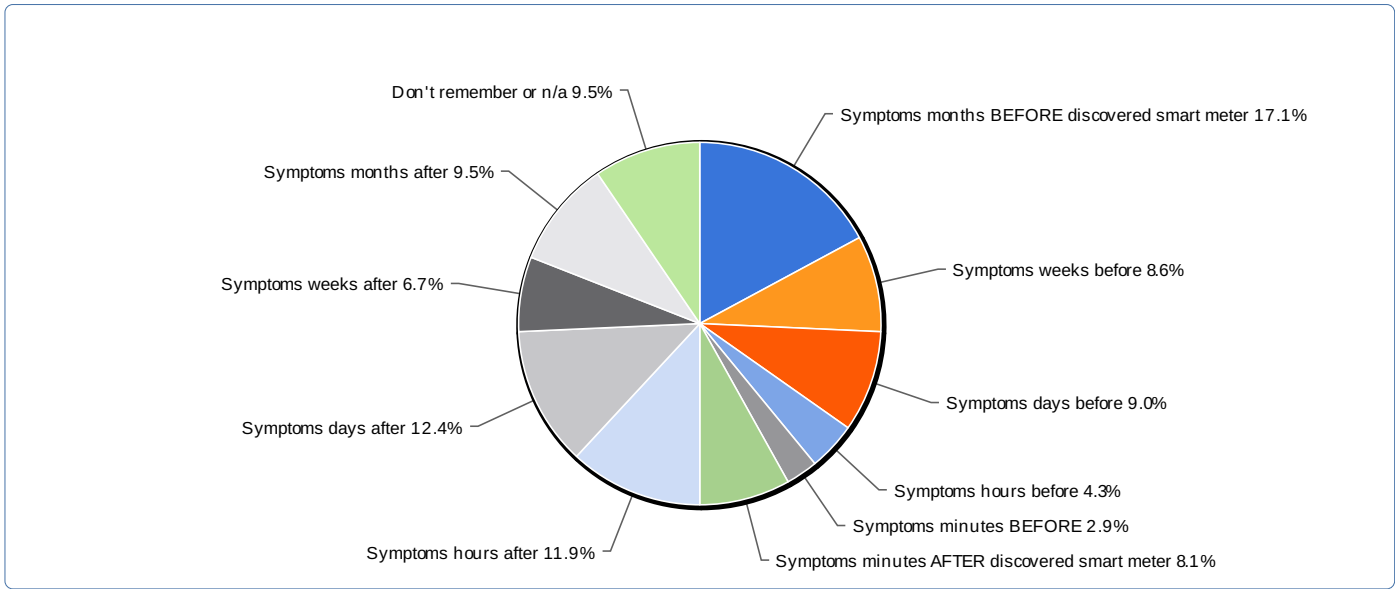
Statistics	
Total Responses	138
Skipped	0
Unanswered	72



16. Approximately how long after smart meter installation or the start of exposure (concerning only the smart meter(s) that most affected you) did new symptoms begin and/or previous symptoms worsen? (Please read the answer that appears in the dropdown menu box after you make your selection, to be sure it is correct).

Value	Count	Percent %
Within a few minutes after installation/start of exposure	24	11.4%
Less than one hour after installation/start of exposure	17	8.1%
Later on the day of installation/start of exposure	29	13.8%
The day after installation/start of exposure	2	1.0%
2 to 3 days after installation/start of exposure	20	9.5%
4 to 6 days after installation/start of exposure	11	5.2%
7 to 13 days after installation/start of exposure	11	5.2%
14 to 28 days after installation/start of exposure	15	7.1%
1 to 2 months after installation/start of exposure	17	8.1%
2+ to 3 months after installation/start of exposure	9	4.3%
More than 3 months after installation/start of exposure	14	6.7%
Don't remember, don't know or n/a	26	12.4%
Hours	15	7.1%

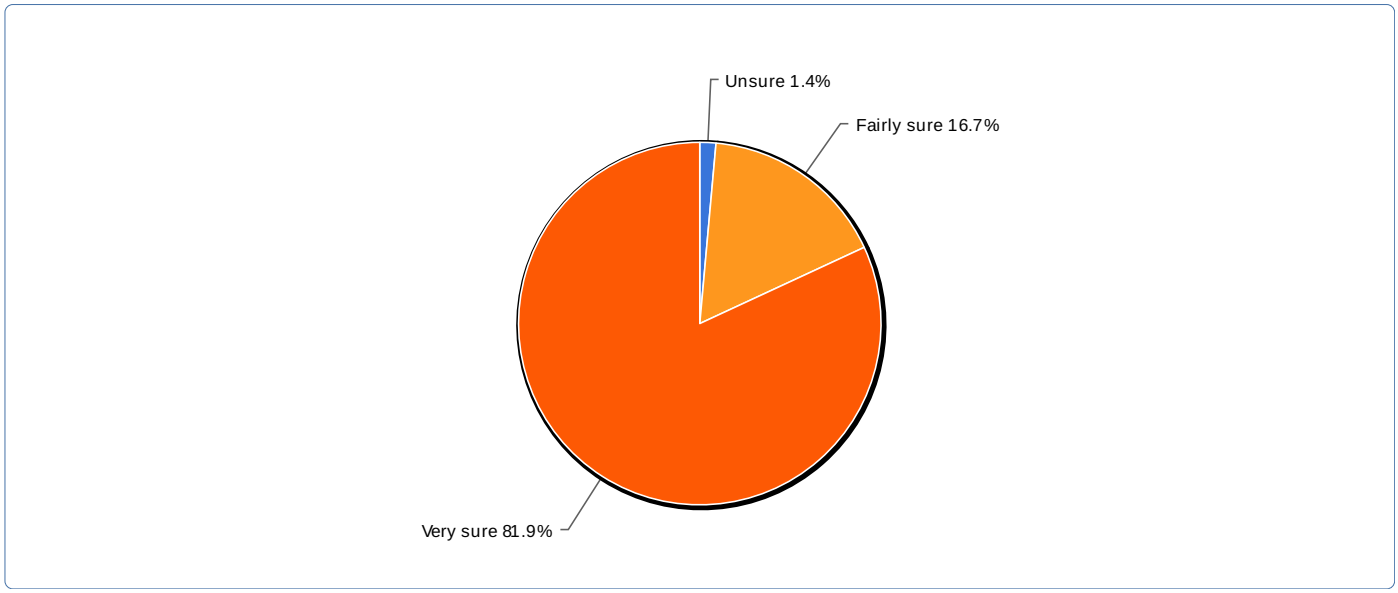
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



17. Did your new/worsened symptoms (that you correlate with smart meter exposure) begin or worsen BEFORE, or AFTER you first DISCOVERED the presence of a smart meter? (the smart meter(s) that most affected you) (After you select your answer, please double-check to be sure that the answer that shows in the box is the one you meant to select).

Value	Count	Percent %
Symptoms months BEFORE discovered smart meter	36	17.1%
Symptoms weeks before	18	8.6%
Symptoms days before	19	9.1%
Symptoms hours before	9	4.3%
Symptoms minutes BEFORE	6	2.9%
Symptoms minutes AFTER discovered smart meter	17	8.1%
Symptoms hours after	25	11.9%
Symptoms days after	26	12.4%
Symptoms weeks after	14	6.7%
Symptoms months after	20	9.5%
Don't remember or n/a	20	9.5%

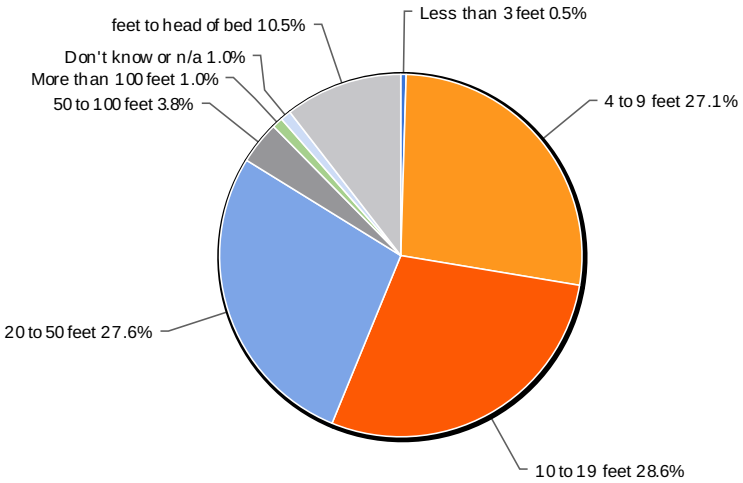
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



18. How sure are you that your new/worsened symptoms correlated to smart meter exposure?

Value	Count	Percent %
Unsure	3	1.4%
Fairly sure	35	16.7%
Very sure	172	81.9%

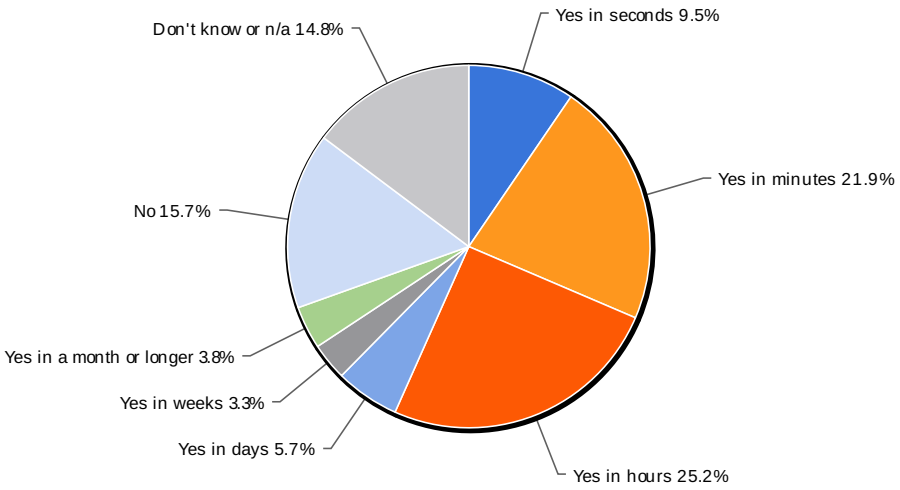
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



19. What is (or was) the approximate distance (through the wall in a straight-line measurement) between the closest smart meter and the location closest to the smart meter where you spent the most time (for example, the head of your bed)?

Value	Count	Percent %
Less than 3 feet	1	0.5%
4 to 9 feet	57	27.1%
10 to 19 feet	60	28.6%
20 to 50 feet	58	27.6%
50 to 100 feet	8	3.8%
More than 100 feet	2	1.0%
Don't know or n/a	2	1.0%
feet to head of bed	22	10.5%

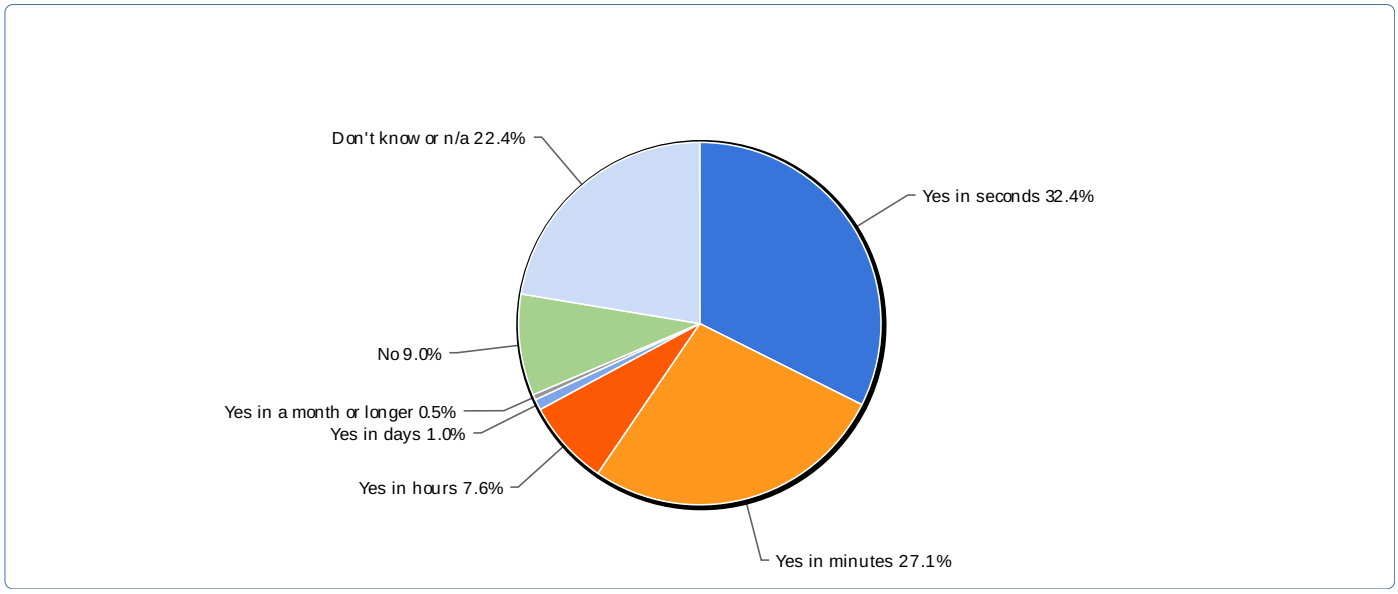
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



20. Did your symptoms lessen when you went further away from smart meter(s)?

Value	Count	Percent %
Yes in seconds	20	9.5%
Yes in minutes	46	21.9%
Yes in hours	53	25.2%
Yes in days	12	5.7%
Yes in weeks	7	3.3%
Yes in a month or longer	8	3.8%
No	33	15.7%
Don't know or n/a	31	14.8%

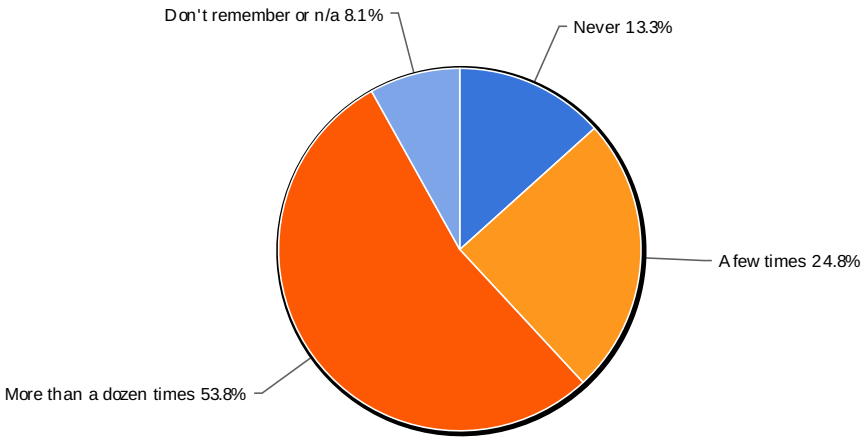
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



21. Did your symptoms worsen when you went closer to smart meter(s)?

Value	Count	Percent %
Yes in seconds	68	32.4%
Yes in minutes	57	27.1%
Yes in hours	16	7.6%
Yes in days	2	1.0%
Yes in weeks	0	0.0%
Yes in a month or longer	1	0.5%
No	19	9.1%
Don't know or n/a	47	22.4%

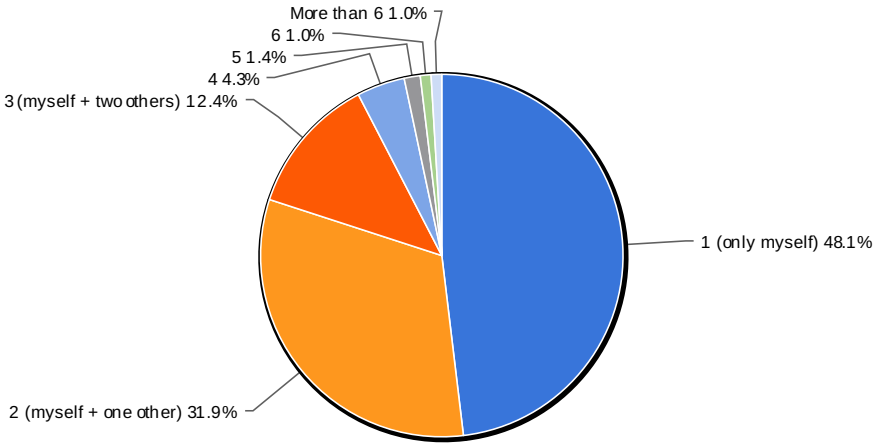
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



22. How many times did you conduct the inadvertent (or conscious) "experiment" described by the previous two questions?

Value	Count	Percent %
Never	28	13.3%
A few times	52	24.8%
More than a dozen times	113	53.8%
Don't remember or n/a	17	8.1%

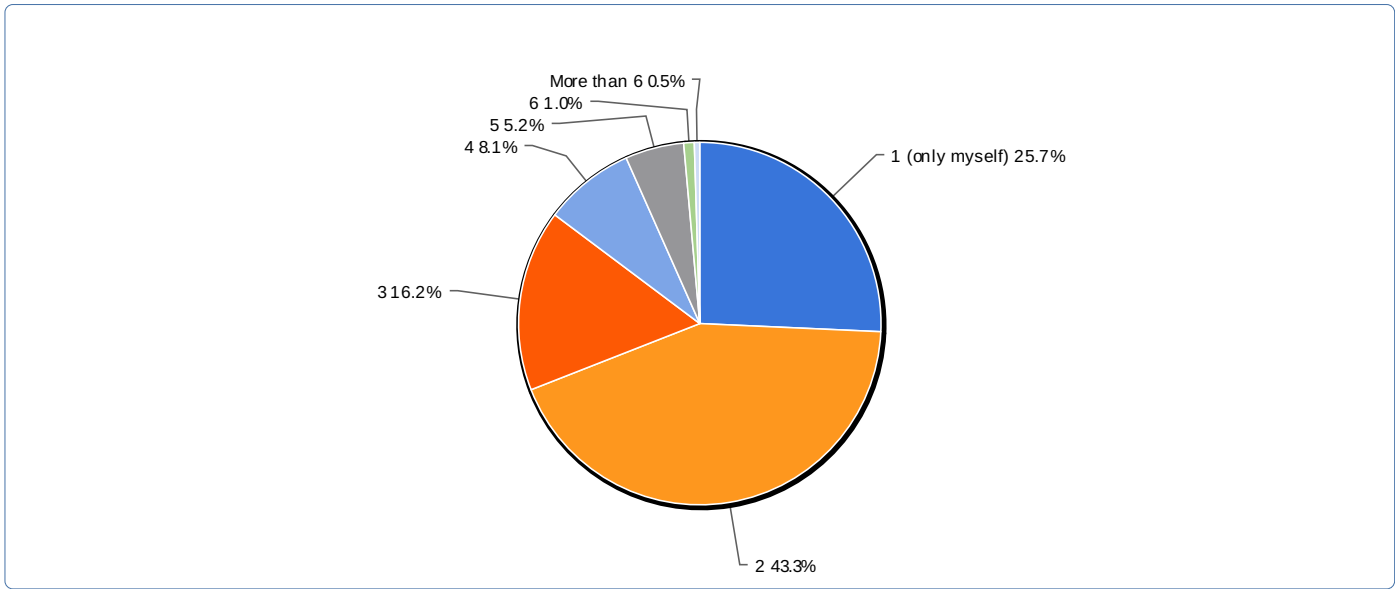
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



23. How many people in your household were affected by smart meters, including yourself?

Value	Count	Percent %
1 (only myself)	101	48.1%
2 (myself + one other)	67	31.9%
3 (myself + two others)	26	12.4%
4	9	4.3%
5	3	1.4%
6	2	1.0%
More than 6	2	1.0%

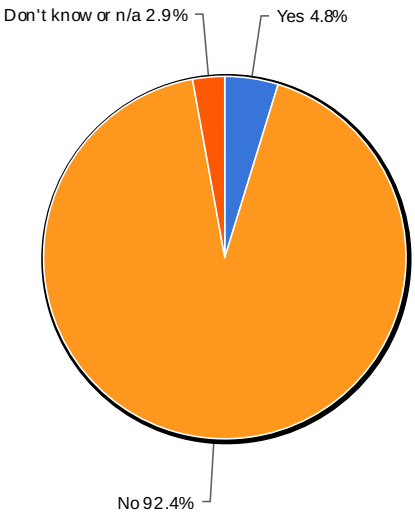
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



24. What was the total number of persons living in your household at the time of smart meter exposure, including yourself?

Value	Count	Percent %
1 (only myself)	54	25.7%
2	91	43.3%
3	34	16.2%
4	17	8.1%
5	11	5.2%
6	2	1.0%
More than 6	1	0.5%

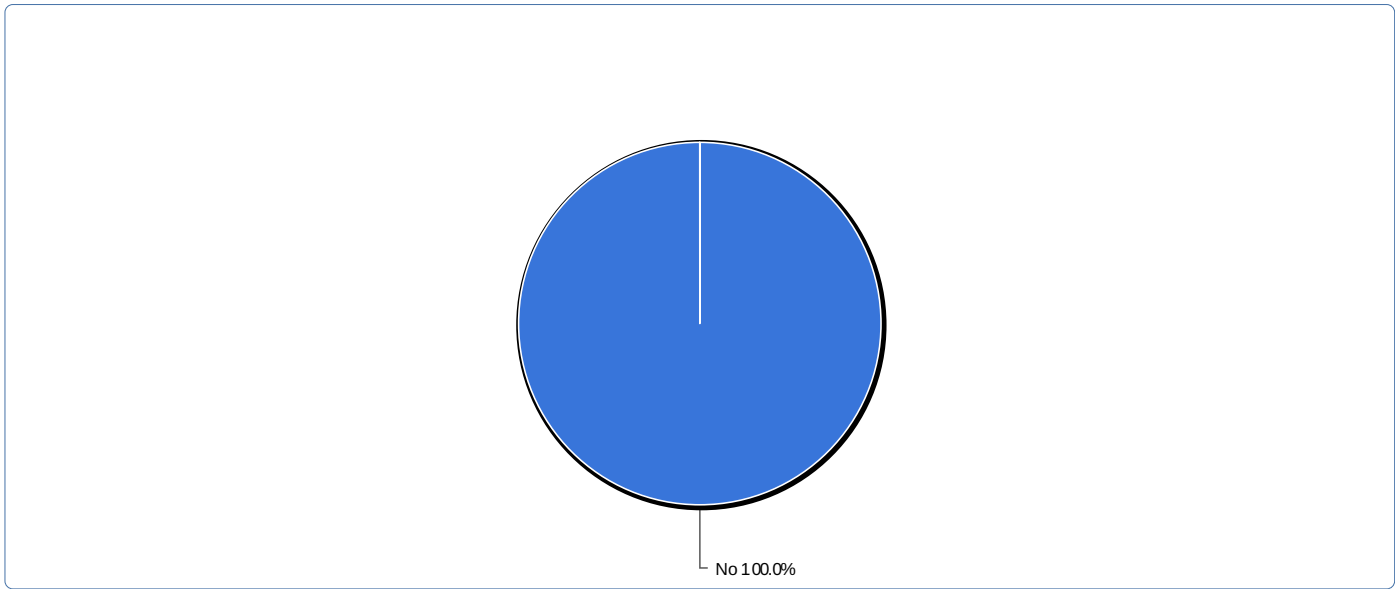
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



25. Was there any new electronic device in your home that was first turned on at around the time of smart meter installation/start of exposure, such as a: baby monitor, DECT cordless phone, large screen TV, computer/monitor, internet connection, Wi-Fi device, high-efficiency light bulbs such as compact fluorescents (CFLs) or LEDs, induction-type stove top, generator, welder, large charger or 12 volt DC to 120 volt AC inverter such as for a solar system?

Value	Count	Percent %
Yes	10	4.8%
No	194	92.4%
Don't know or n/a	6	2.9%

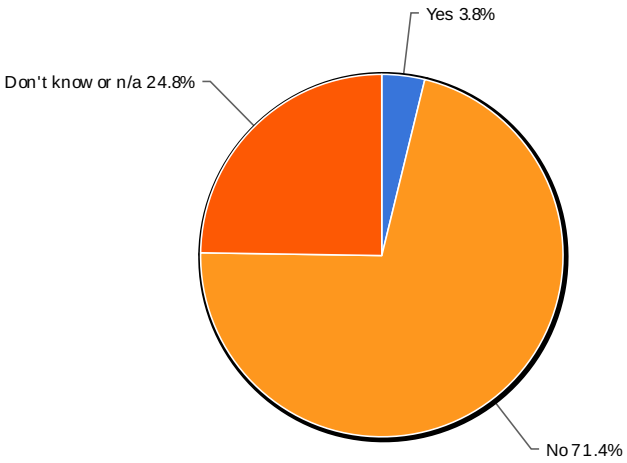
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



If "Yes" a new device was turned on at the time, is it possible that your new/unusual or intensified symptoms were associated with this new device and not at all to the smart meter?

Value	Count	Percent %
Yes it is possible	0	0.0%
No	11	100.0%
Don't know or n/a	0	0.0%

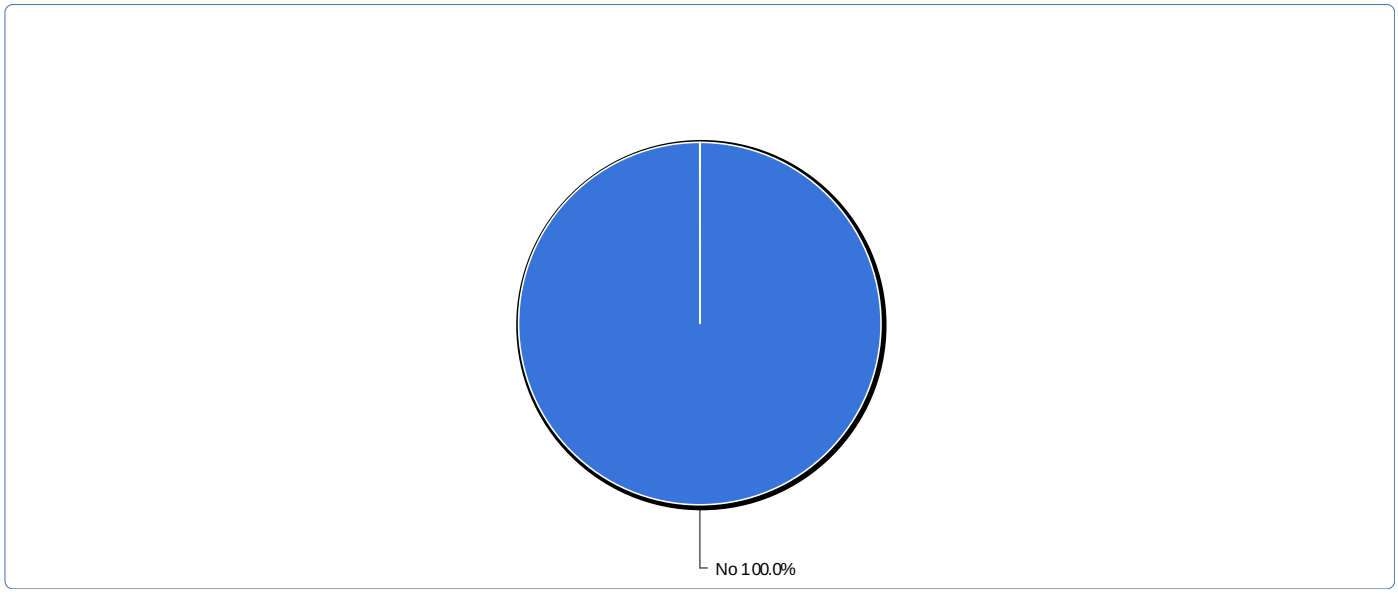
Statistics	
Total Responses	11
Skipped	1
Unanswered	199



26. Was there a new antenna/transmitter newly activated near your home around the time of smart meter installation/start of exposure that was not part of the Smart Meter Mesh system (such as a new cell tower or emergency police/fire communication system, either an antenna, or a microwave dish/drum pointed at you at your elevation)?

Value	Count	Percent %
Yes	8	3.8%
No	150	71.4%
Don't know or n/a	52	24.8%

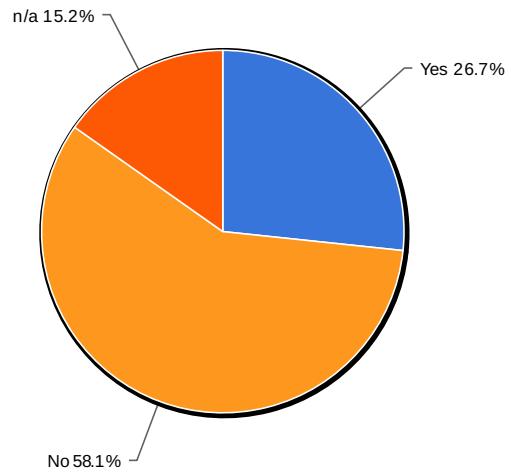
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



If "Yes" a new antenna/transmitter was activated, is it possible your new/unusual or intensified symptoms were associated with this transmitter and not at all to the smart meter?

Value	Count	Percent %
Yes it is possible	0	0.0%
No	9	100.0%
Don't know or n/a	0	0.0%

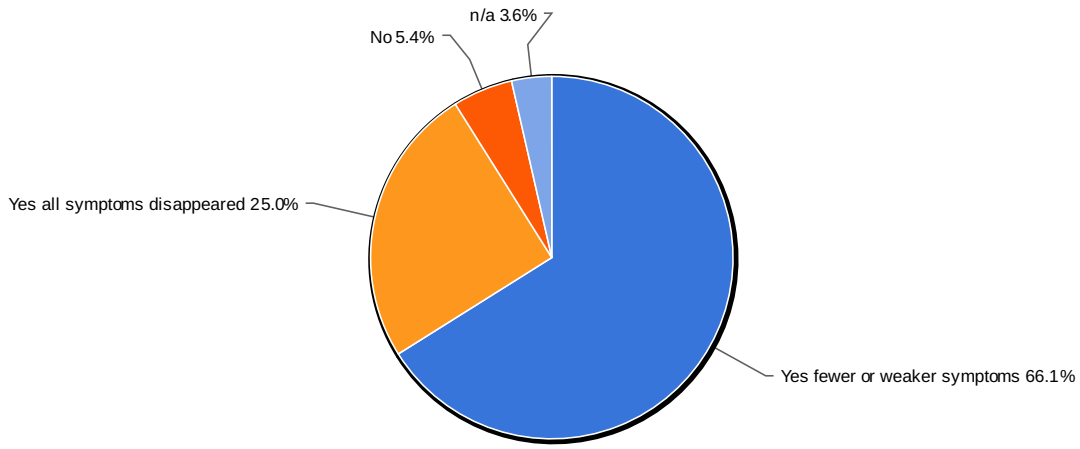
Statistics	
Total Responses	9
Skipped	0
Unanswered	201



27. If one or more smart meter(s) were installed on your residence, have all of them been removed?

Value	Count	Percent %
Yes	56	26.7%
No	122	58.1%
n/a	32	15.2%

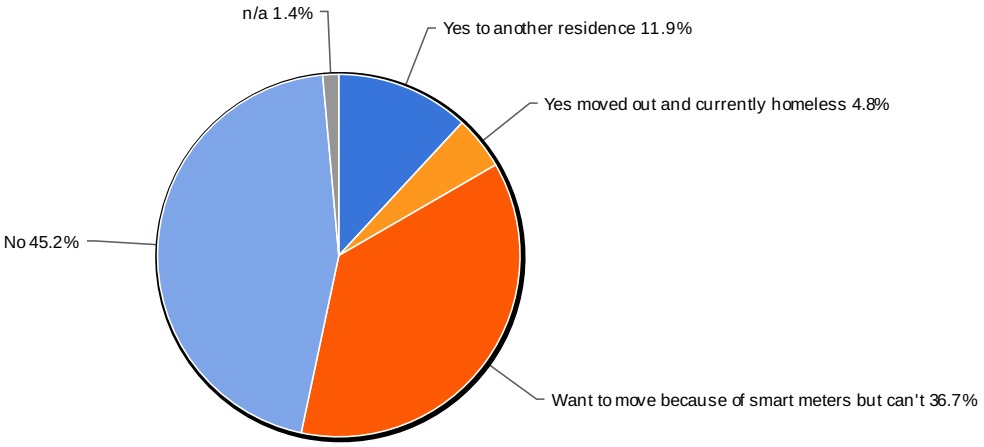
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



If "Yes" all smart meters were removed, did removal decrease your symptoms?

Value	Count	Percent %
Yes fewer or weaker symptoms	37	66.1%
Yes all symptoms disappeared	14	25.0%
No	3	5.4%
n/a	2	3.6%

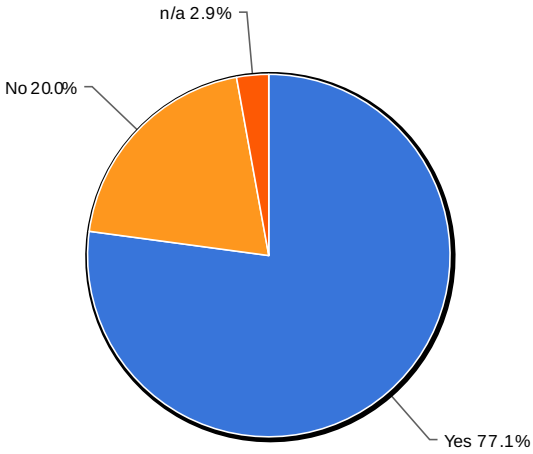
Statistics	
Total Responses	56
Skipped	0
Unanswered	154



28. Have you moved?

Value	Count	Percent %
Yes to another residence	25	11.9%
Yes moved out and currently homeless	10	4.8%
Want to move because of smart meters but can't	77	36.7%
No	95	45.2%
n/a	3	1.4%

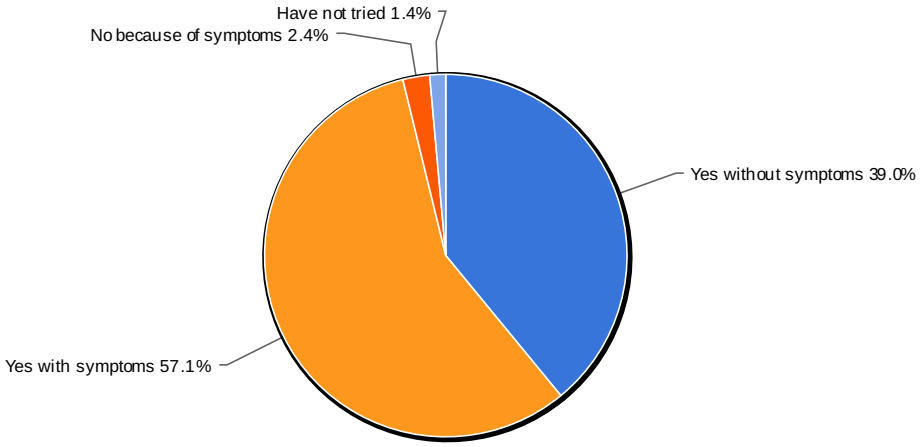
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



If you moved, did you move primarily because of smart meter(s)?

Value	Count	Percent %
Yes	27	77.1%
No	7	20.0%
n/a	1	2.9%

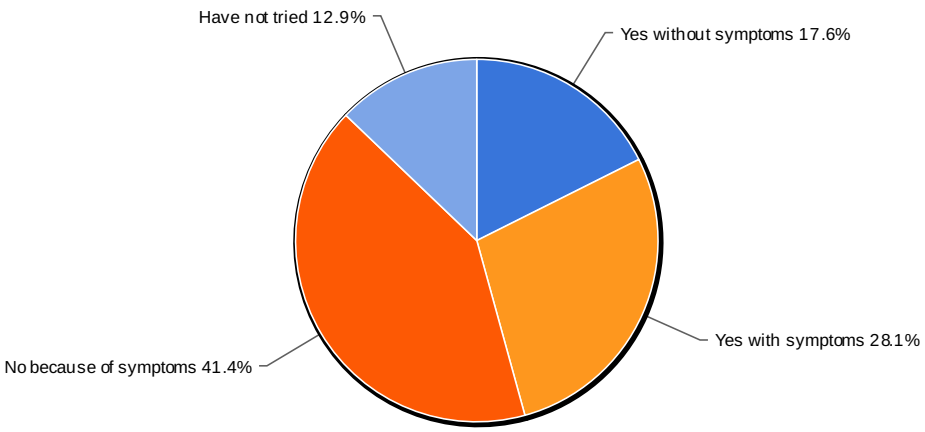
Statistics	
Total Responses	35
Skipped	0
Unanswered	175



29. Are you presently able to use a computer?

Value	Count	Percent %
Yes without symptoms	82	39.1%
Yes with symptoms	120	57.1%
No because of symptoms	5	2.4%
Have not tried	3	1.4%

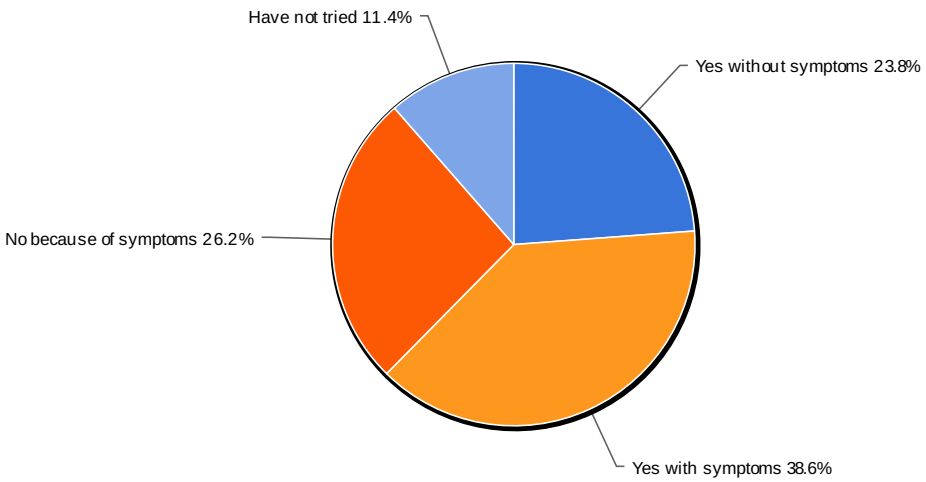
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



30. Are you presently able to use Wi-Fi?

Value	Count	Percent %
Yes without symptoms	37	17.6%
Yes with symptoms	59	28.1%
No because of symptoms	87	41.4%
Have not tried	27	12.9%

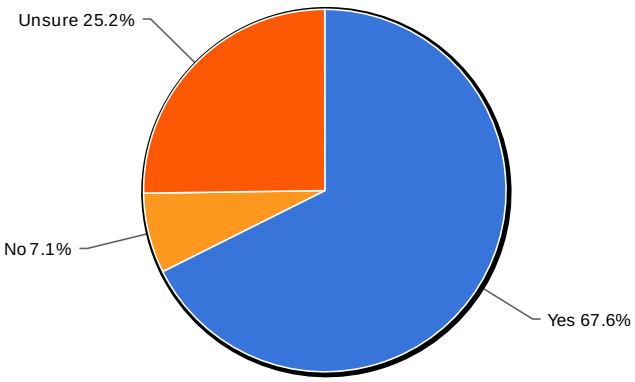
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



31. Are you presently able to use a cell phone?

Value	Count	Percent %
Yes without symptoms	50	23.8%
Yes with symptoms	81	38.6%
No because of symptoms	55	26.2%
Have not tried	24	11.4%

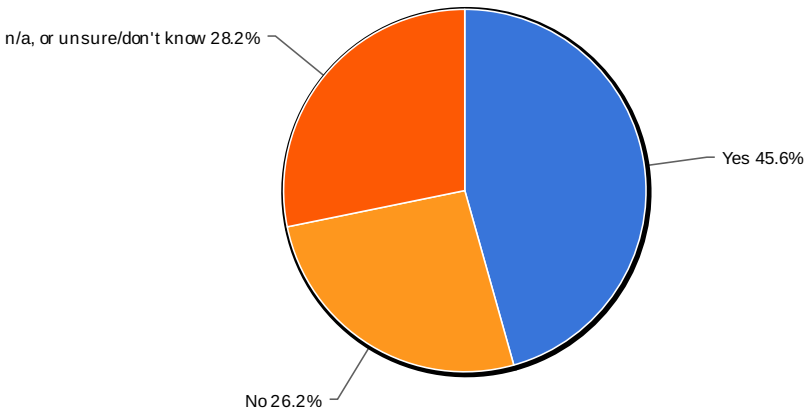
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



32. Do you presently have ES (Electrical Sensitivity)?

Value	Count	Percent %
Yes	142	67.6%
No	15	7.1%
Unsure	53	25.2%

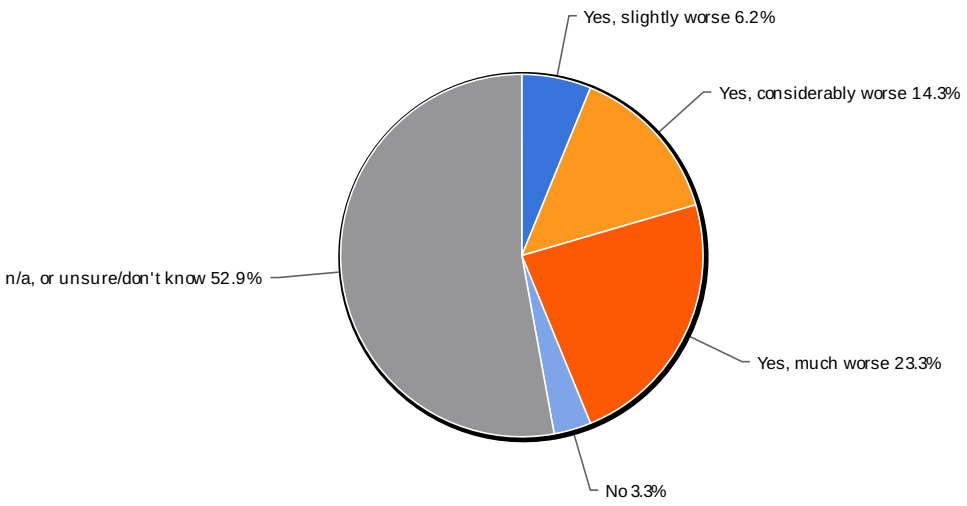
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



Was your exposure to smart meters responsible for initiating your ES?

Value	Count	Percent %
Yes	89	45.6%
No	51	26.2%
n/a, or unsure/don't know	55	28.2%

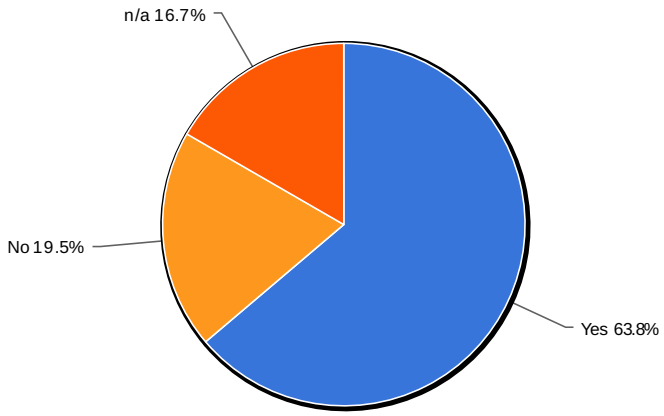
Statistics	
Total Responses	195
Skipped	0
Unanswered	15



36. If you already had ES before smart meters, did your exposure to smart meters make your ES worse?

Value	Count	Percent %
Yes, slightly worse	13	6.2%
Yes, considerably worse	30	14.3%
Yes, much worse	49	23.3%
No	7	3.3%
n/a, or unsure/don't know	111	52.9%

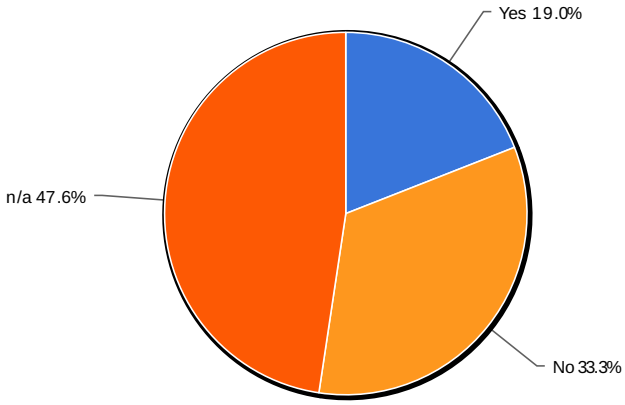
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



37. Have your symptoms from smart meter(s) significantly limited your capacity to work?

Value	Count	Percent %
Yes	134	63.8%
No	41	19.5%
n/a	35	16.7%

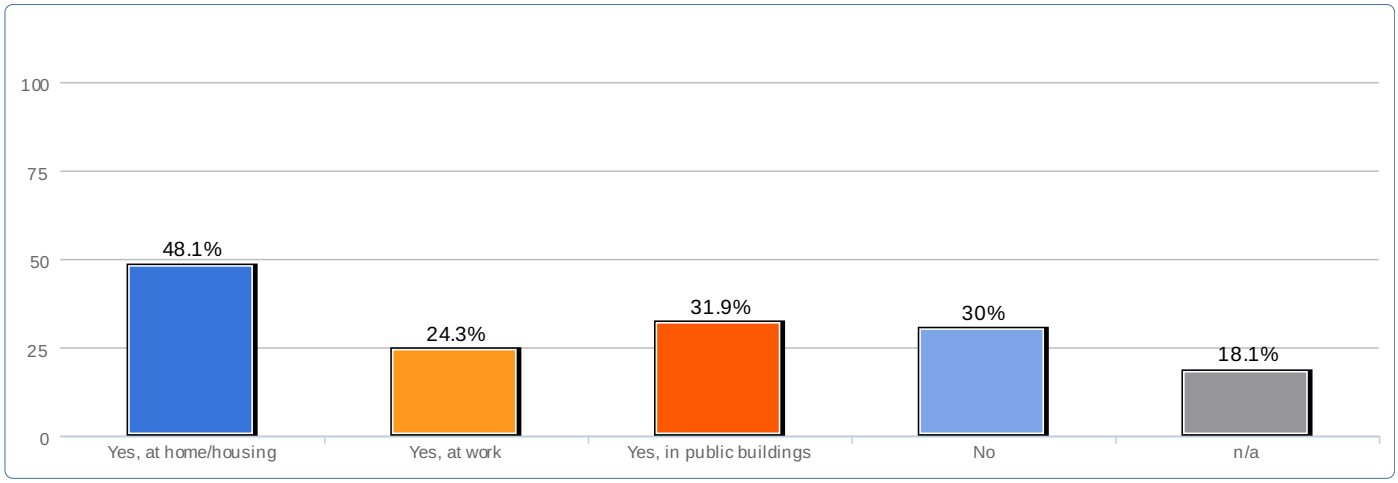
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



38. If you had a job, did your symptoms from smart meter(s) force you to leave it?

Value	Count	Percent %
Yes	40	19.1%
No	70	33.3%
n/a	100	47.6%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0



39. Have your symptoms from smart meter(s) caused you to have a disability that needs (or needed) accommodation? (Check all boxes that apply; you can check more than one.)

Value	Count	Percent %
Yes, at home/housing	101	48.1%
Yes, at work	51	24.3%
Yes, in public buildings	67	31.9%
No	63	30.0%
n/a	38	18.1%

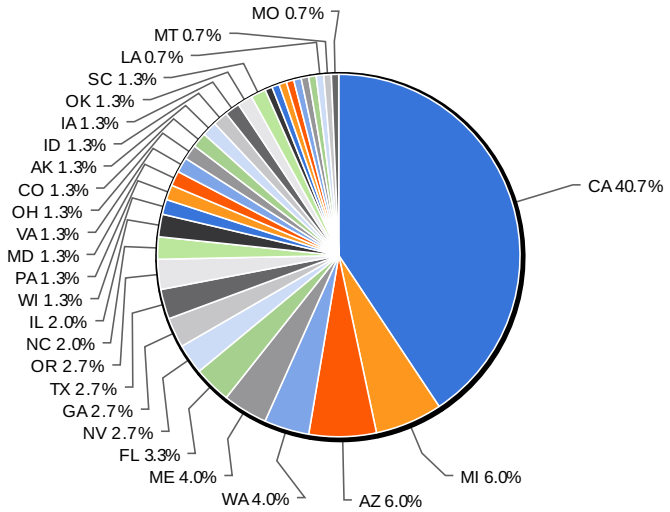
Statistics	
Total Responses	210
Skipped	0
Unanswered	0

40. Have you been diagnosed by a M.D. to have anyof the following conditions, and if Yes, diagnosed when?[SM = your exposure to Smart Meter(s)]

	No or n/a	Yes, before SM	Yes, after SM	Responses
Cardiac arrhythmia	**77.8%** 140	**10.0%** 18	**12.2%** 22	**180**
Other heart condition	**86.3%** 145	**8.9%** 15	**4.8%** 8	**168**
MCS	**75.6%** 136	**20.6%** 37	**3.9%** 7	**180**
CFIDS	**86.8%** 145	**11.4%** 19	**1.8%** 3	**167**
Fibromyalgia	**80.4%** 135	**14.3%** 24	**5.4%** 9	**168**
Lupus	**99.4%** 153	**0.6%** 1	**0.0%** 0	**154**
MS	**97.5%** 153	**2.5%** 4	**0.0%** 0	**157**
Otherautoimmune	**77.1%** 135	**15.4%** 27	**7.4%** 13	**175**

Were any of these diagnosed conditionsworsened by SM or initiated by SM?[SM = your exposure to Smart Meter(s)]

	No or n/a	Yes, Worsened by SM	Yes, Initiated by SM	Responses
Cardiac arrhythmia	**31.1%** 19	**32.8%** 20	**36.1%** 22	**61**
Other heart condition	**72.3%** 34	**12.8%** 6	**14.9%** 7	**47**
MCS	**43.3%** 26	**46.7%** 28	**10.0%** 6	**60**
CFIDS	**58.7%** 27	**34.8%** 16	**6.5%** 3	**46**
Fibromyalgia	**43.4%** 23	**43.4%** 23	**13.2%** 7	**53**
Lupus	**100.0%** 33	**0.0%** 0	**0.0%** 0	**33**
MS	**89.2%** 33	**10.8%** 4	**0.0%** 0	**37**
Otherautoimmune	**50.8%** 32	**38.1%** 24	**11.1%** 7	**63**



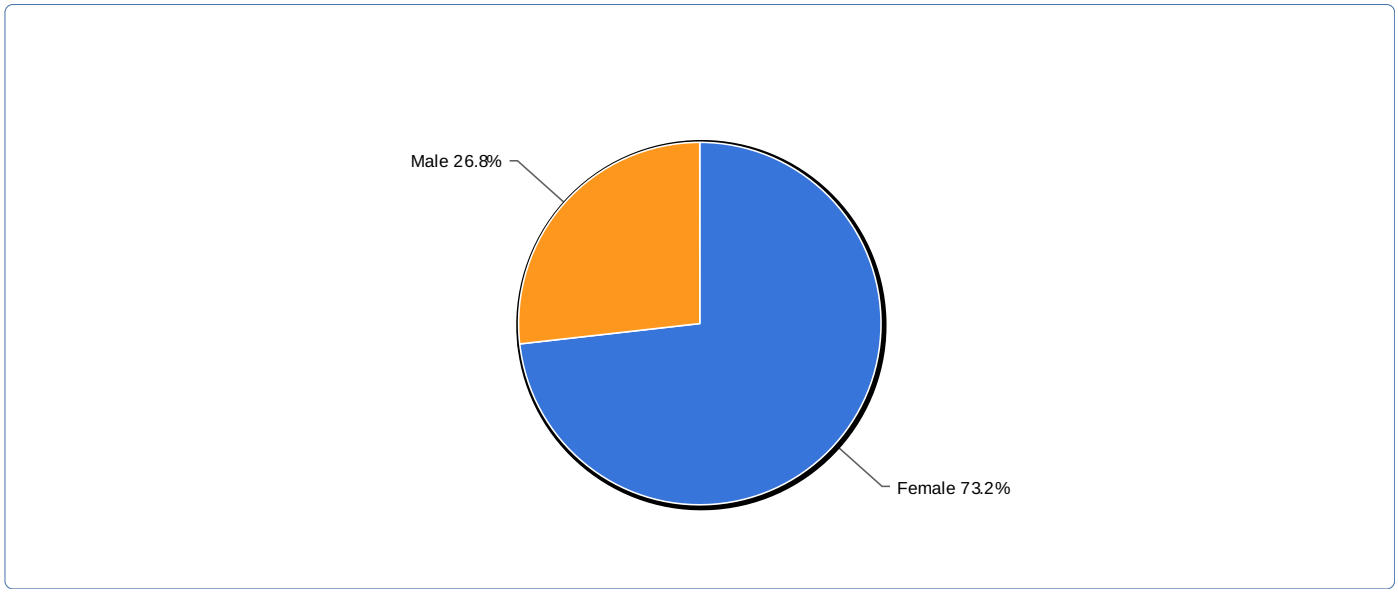
State if a USA address (pease review your selection to be sure it is correct). If not a USA address, enter your equivalent to State in the "(Provence)" textbox, also enter your equivalent of Zip code and enter your Country, and then ignore the reminder "You skipped this question" that pops up over County and State when you click "Submit Survey". Just scroll down to the bottom of the page again and click "Submit Survey" a second time.

Value	Count	Percent %
CA	61	40.7%
MI	9	6.0%
AZ	9	6.0%
WA	6	4.0%
ME	6	4.0%
FL	5	3.3%
NV	4	2.7%
GA	4	2.7%
TX	4	2.7%
OR	4	2.7%
NC	3	2.0%
IL	3	2.0%
WI	2	1.3%
PA	2	1.3%
MD	2	1.3%
VA	2	1.3%
OH	2	1.3%
CO	2	1.3%
AK	2	1.3%
ID	2	1.3%
IA	2	1.3%
OK	2	1.3%
SC	2	1.3%
TN	1	0.7%
VT	1	0.7%
HI	1	0.7%
AL	1	0.7%
SD	1	0.7%
NY	1	0.7%
NH	1	0.7%

Statistics	
Total Responses	150
Skipped	60
Unanswered	60

LA	1	0.7%
MT	1	0.7%
MO	1	0.7%
MP	0	0.0%
OH	0	0.0%
OK	0	0.0%
OR	0	0.0%
ND	0	0.0%
PW	0	0.0%
NJ	0	0.0%
NV	0	0.0%
NE	0	0.0%
NH	0	0.0%
PA	0	0.0%
NY	0	0.0%
NM	0	0.0%
NC	0	0.0%
SD	0	0.0%
WA	0	0.0%
VA	0	0.0%
WV	0	0.0%
WI	0	0.0%
MT	0	0.0%
WY	0	0.0%
VI	0	0.0%
VT	0	0.0%
SC	0	0.0%
RI	0	0.0%
TN	0	0.0%
TX	0	0.0%
UT	0	0.0%
PR	0	0.0%
GA	0	0.0%
DE	0	0.0%
CT	0	0.0%
DC	0	0.0%
FM	0	0.0%
GU	0	0.0%
FL	0	0.0%
CO	0	0.0%
CA	0	0.0%
AK	0	0.0%
AL	0	0.0%
AS	0	0.0%
AZ	0	0.0%
AR	0	0.0%
HI	0	0.0%
ID	0	0.0%
MD	0	0.0%
MH	0	0.0%
MA	0	0.0%

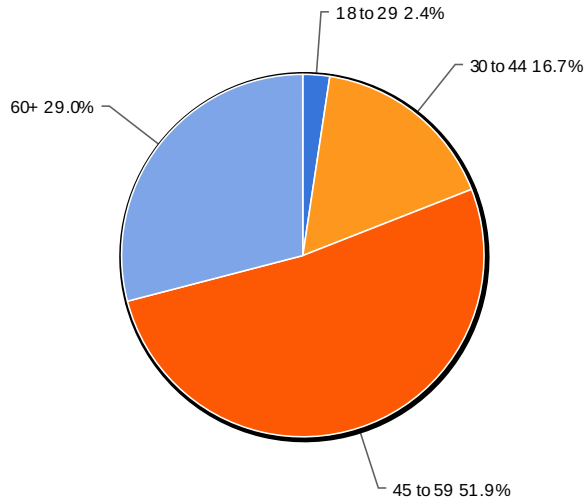
MI	0	0.0%
MS	0	0.0%
MN	0	0.0%
ME	0	0.0%
LA	0	0.0%
IN	0	0.0%
IL	0	0.0%
IA	0	0.0%
KS	0	0.0%
KY	0	0.0%
MO	0	0.0%



42. Sex

Value	Count	Percent %
Female	153	73.2%
Male	56	26.8%

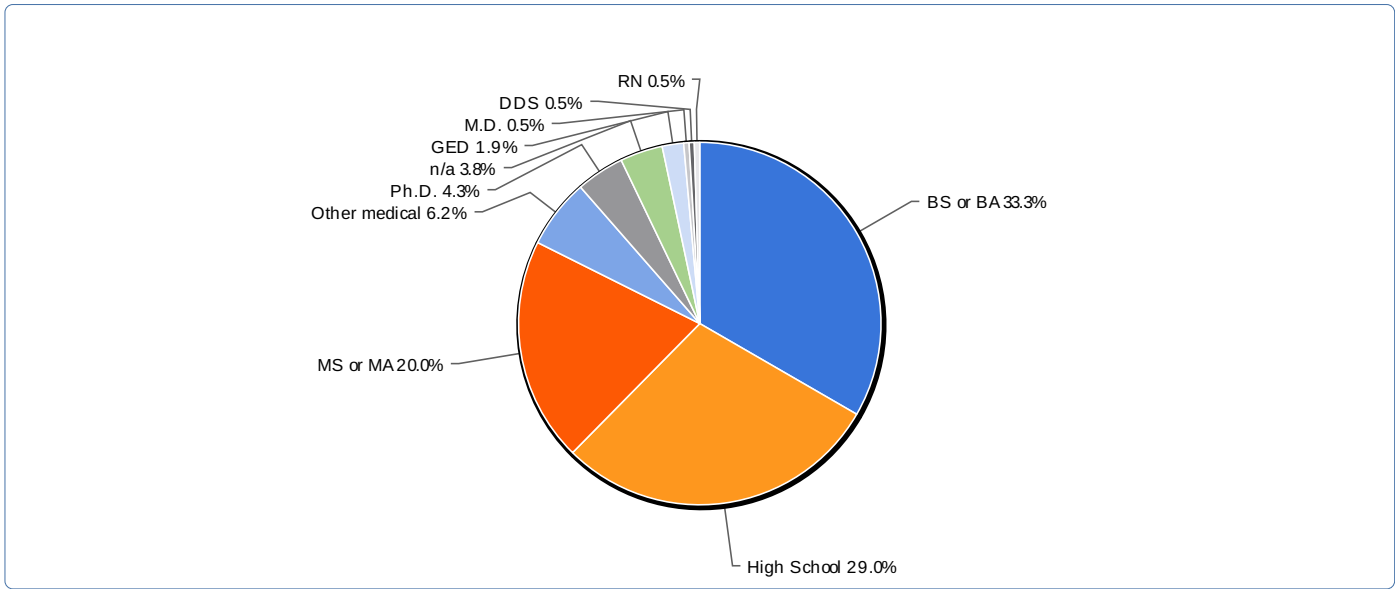
Statistics	
Total Responses	209
Skipped	1
Unanswered	1



43. Please Select Your Age Range

Value	Count	Percent %
under 18	0	0.0%
18 to 29	5	2.4%
30 to 44	35	16.7%
45 to 59	109	51.9%
60+	61	29.1%

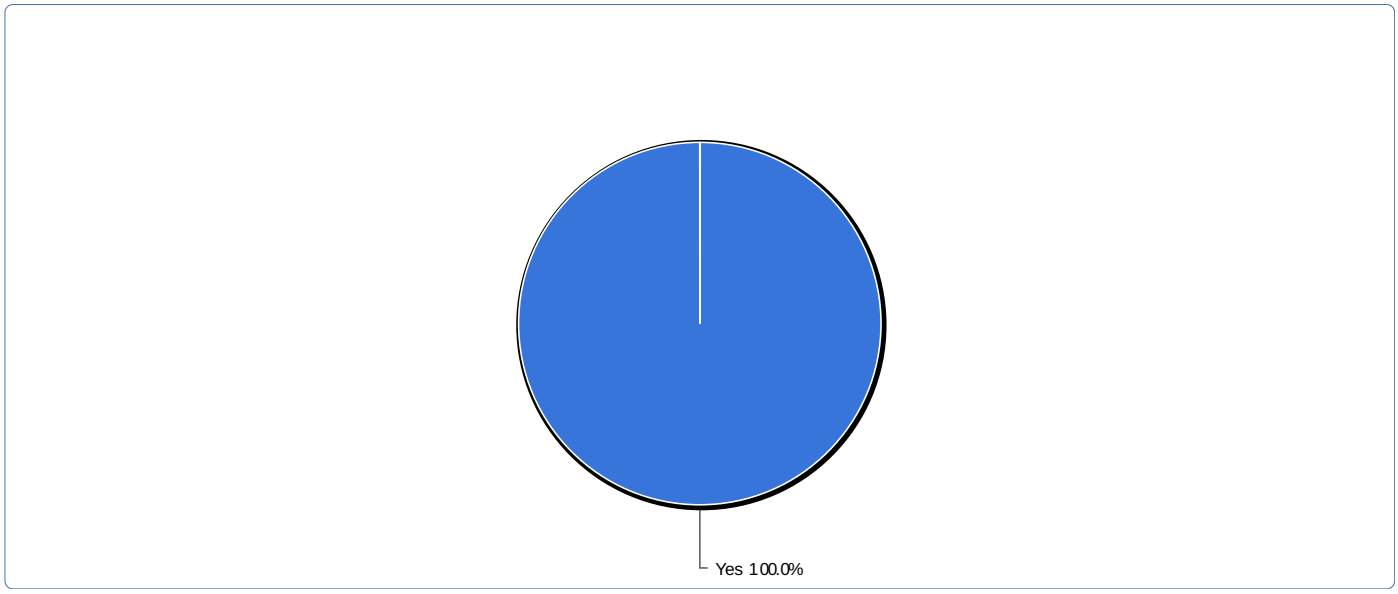
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



44. Highest degree achieved: (Please review your answer after you select it to be sure it is correct).

Value	Count	Percent %
BS or BA	70	33.3%
High School	61	29.1%
MS or MA	42	20.0%
Other medical	13	6.2%
Ph.D.	9	4.3%
n/a	8	3.8%
GED	4	1.9%
M.D.	1	0.5%
DDS	1	0.5%
RN	1	0.5%

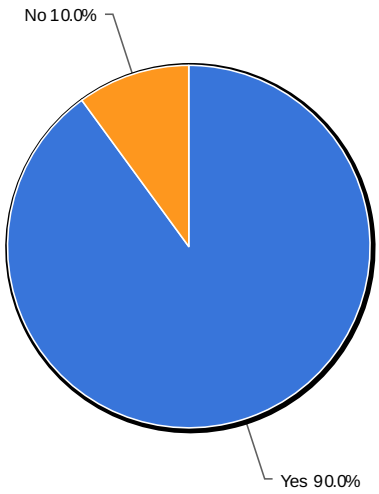
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



47. Anonymous Use: Do you give us permission to incorporate your answers and comments given in this questionnaire: into a research database to be used in our analysis and report which may eventually be presented, as anonymous data only, in legal proceedings, at conferences and/or published, including permission for us to quote some of your comments anonymously? [Your personally identifiable information - last name, street address, email and phone number - will remain in a secure SurveyGizmo computer database. Neither SurveyGizmo nor the author of this survey will share any of your personally identifiable information with anyone. The author will use your phone number to contact you only if there is a problem with your survey.]

Value	Count	Percent %
Yes	210	100.0%
No	0	0.0%

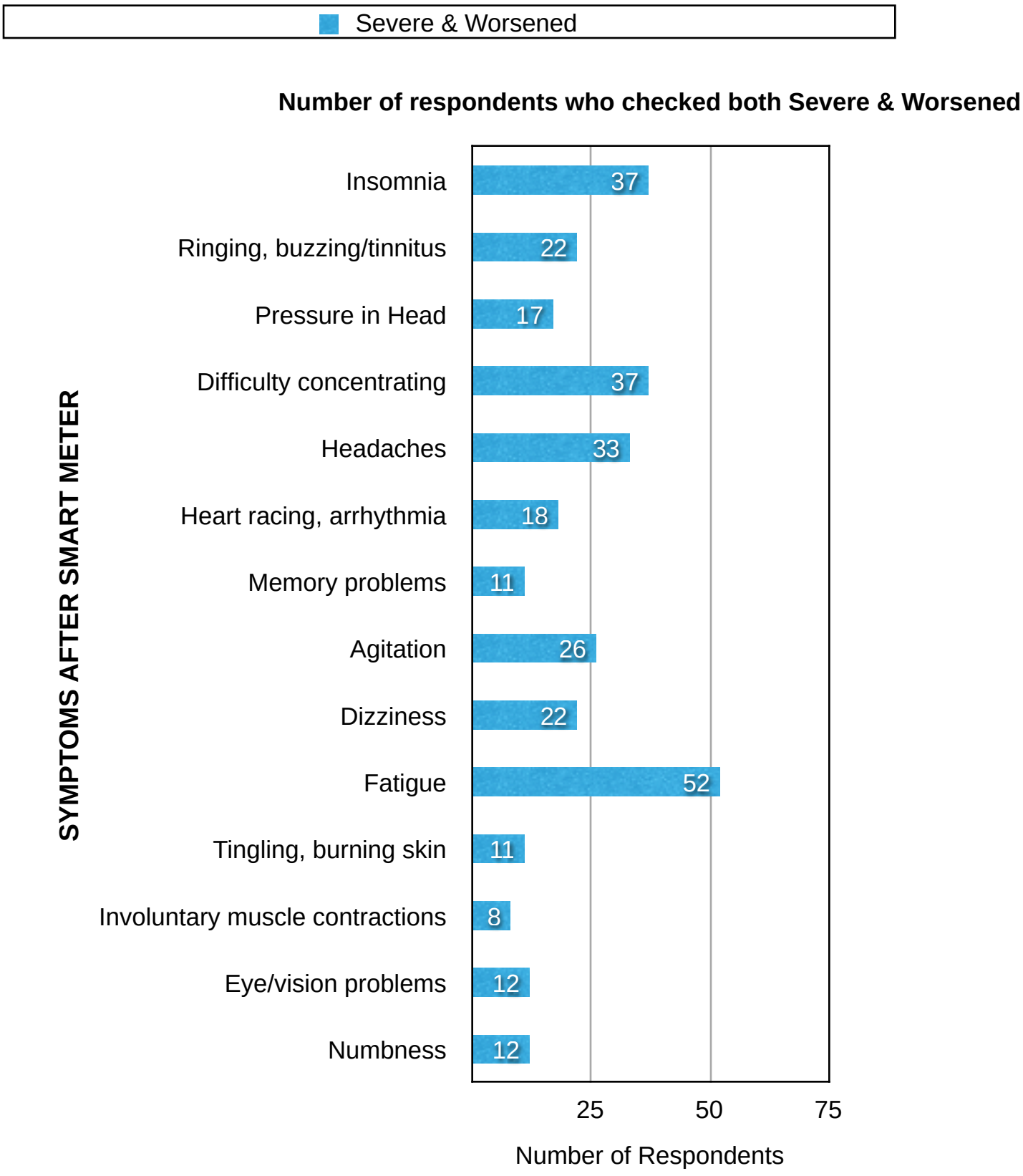
Statistics	
Total Responses	210
Skipped	0
Unanswered	0



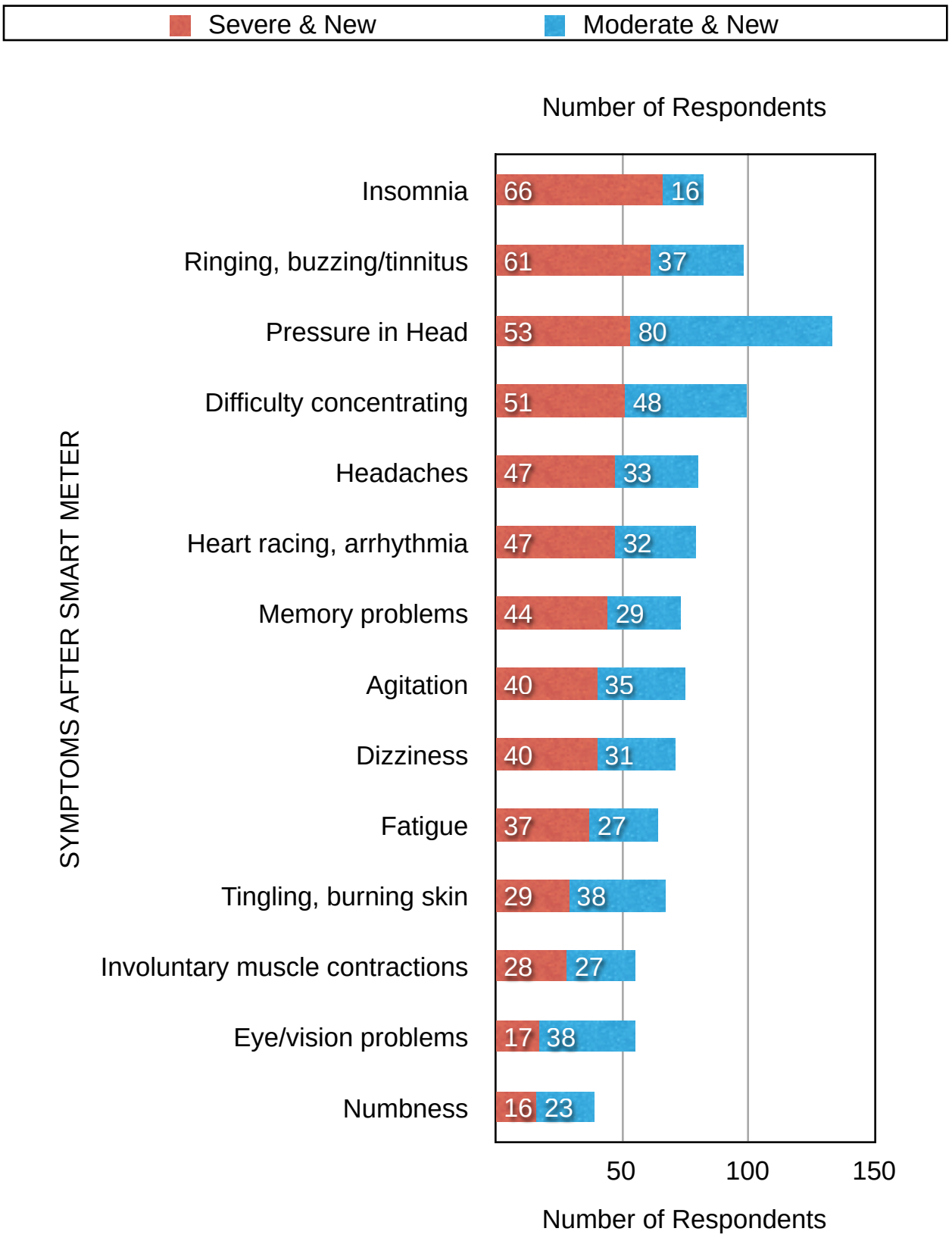
48. Limited Confidential Disclosure: Anonymous data carry very little weight in regulatory or legal proceedings. Therefore in order for your data to be convincing in such proceedings, it must include at least your full name and street address. If you answered "Yes" to the previous question concerning permission to use anonymously, do you give us further permission to use all (except email and phone) of your answers and comments given in this questionnaire, including full name and street address, subject to confidentiality restrictions (i.e., disclosable only to parties to proceedings who are bound by sworn confidentiality obligations not to disclose any personal information), in regulatory/legal proceedings concerning smart meters, including in the pending investigation of smart meters by the Maine Public Utilities Commission? (Your email and phone will not be revealed under any conditions. If you did not supply your last name, street address, email and phone number where requested in previous questions, please reconsider doing so.) [Aside from this limited and confidential disclosure, your personally identifiable information (last name, street address, email and phone number) will remain in a secure SurveyGizmo computer database, accessible only to the author of this survey via a secure password. All surveys and data reside on SurveyGizmo's servers, which use Advanced Encryption Standard (AES) 256 bit encryption, the method used by banks and by the US National Security Agency for classified top secret information. There are multiple layers of proactive security, and data are never exported, sold, rented or used in any way by SurveyGizmo.]

Value	Count	Percent %
Yes	188	90.0%
No	21	10.1%

Statistics	
Total Responses	209
Skipped	1
Unanswered	1


Severe & Worsened
Number of respondents who checked both Severe & Worsened
SYMPTOMS AFTER SMART METER
Insomnia
37
Ringing, buzzing/tinnitus
22
Pressure in Head
17
Difficulty concentrating
37
Headaches
33
Heart racing, arrhythmia
18
Memory problems
11
Agitation
26
Dizziness
22
Fatigue
52
Tingling, burning skin
11
Involuntary muscle contractions
8
Eye/vision problems
12
Numbness
12
25
50
75
Number of Respondents

j


Severe & New
Moderate & New
Number of Respondents
SYMPTOMS AFTER SMART METER
Insomnia
66
16
Ringing, buzzing/tinnitus
61
37
Pressure in Head
53
80
Difficulty concentrating
51
48
Headaches
47
33
Heart racing, arrhythmia
47
32
Memory problems
44
29
Agitation
40
35
Dizziness
40
31
Fatigue
37
27
Tingling, burning skin
29
38
Involuntary muscle contractions
28
27
Eye/vision problems
17
38
Numbness
16
23
50
100
150
Number of Respondents

A. Symptom Intensity AFTER Smart Meter Exposure B. Symptom Category

	MILD	MODERATE	SEVERE	New	Worsened
Agitation	**15.2%** 22	**40.0%** 58	**44.8%** 65	**63.6%** 91	**37.1%** 53
Difficulty concentrating /attention deficits	**10.2%** 16	**34.4%** 54	**55.4%** 87	**54.3%** 88	**46.3%** 75
Digestive problems	**21.9%** 25	**48.2%** 55	**32.5%** 37	**51.4%** 55	**48.6%** 52
Dizziness	**16.3%** 22	**37.8%** 51	**45.9%** 62	**67.2%** 90	**32.8%** 44
Eye/vision problems	**19.5%** 25	**58.6%** 75	**21.9%** 28	**57.7%** 71	**43.9%** 54
Fatigue	**8.3%** 13	**34.4%** 54	**58.0%** 91	**46.2%** 73	**53.8%** 85
Flu-like symptoms	**27.4%** 29	**49.1%** 52	**23.6%** 25	**70.8%** 75	**29.2%** 31
Headaches	**12.2%** 19	**34.0%** 53	**53.8%** 84	**61.4%** 94	**38.6%** 59
Heart racing, arrhythmia or palpitations	**12.2%** 17	**39.6%** 55	**48.2%** 67	**69.9%** 93	**30.1%** 40
High blood pressure	**33.3%** 20	**41.7%** 25	**26.7%** 16	**68.5%** 37	**31.5%** 17
Insomnia	**10.0%** 17	**28.8%** 49	**61.2%** 104	**56.0%** 94	**44.6%** 75
Involuntary muscle contractions	**27.6%** 29	**39.0%** 41	**35.2%** 37	**73.5%** 72	**27.6%** 27
Low blood pressure	**37.8%** 17	**44.4%** 20	**17.8%** 8	**41.9%** 13	**58.1%** 18
Memory problems	**16.2%** 22	**43.4%** 59	**40.4%** 55	**64.3%** 90	**35.7%** 50
Nosebleeds	**54.1%** 33	**34.4%** 21	**11.5%** 7	**75.5%** 40	**24.5%** 13
Numbness in hands or feet	**29.0%** 29	**43.0%** 43	**29.0%** 29	**60.6%** 57	**41.5%** 39
Pressure in head	**13.4%** 18	**34.3%** 46	**53.0%** 71	**76.3%** 100	**23.7%** 31
Respiratory problems	**21.1%** 19	**50.0%** 45	**30.0%** 27	**62.0%** 49	**38.0%** 30
Ringing, buzzing or tone in ears/tinnitus	**11.0%** 18	**36.0%** 59	**53.0%** 87	**67.3%** 109	**32.7%** 53
Tingling, burning or itching skin	**19.1%** 21	**45.5%** 50	**36.4%** 40	**75.5%** 80	**25.5%** 27
Tingling, burning or itching internally	**27.7%** 18	**41.5%** 27	**30.8%** 20	**77.4%** 48	**22.6%** 14

Symptom Intensity AFTER Smart Meter Exposure

	MILD	MODERATE	SEVERE	Total
Agitation	**15.2%** 22	**40.0%** 58	**44.8%** 65	**100%** 145
Difficulty concentrating/attention deficits	**10.2%** 16	**34.4%** 54	**55.4%** 87	**100%** 157
Digestive problems	**21.9%** 25	**48.2%** 55	**32.5%** 37	**100%** 114
Dizziness	**16.3%** 22	**37.8%** 51	**45.9%** 62	**100%** 135
Eye/vision problems	**19.5%** 25	**58.6%** 75	**21.9%** 28	**100%** 128
Fatigue	**8.3%** 13	**34.4%** 54	**58.0%** 91	**100%** 157
Flu-like symptoms	**27.4%** 29	**49.1%** 52	**23.6%** 25	**100%** 106
Headaches	**12.2%** 19	**34.0%** 53	**53.8%** 84	**100%** 156
Heart racing, arrhythmia or palpitations	**12.2%** 17	**39.6%** 55	**48.2%** 67	**100%** 139
High blood pressure	**33.3%** 20	**41.7%** 25	**26.7%** 16	**100%** 60
Insomnia	**10.0%** 17	**28.8%** 49	**61.2%** 104	**100%** 170
Involuntary muscle contractions	**27.6%** 29	**39.0%** 41	**35.2%** 37	**100%** 105
Low blood pressure	**37.8%** 17	**44.4%** 20	**17.8%** 8	**100%** 45
Memory problems	**16.2%** 22	**43.4%** 59	**40.4%** 55	**100%** 136
Nosebleeds	**54.1%** 33	**34.4%** 21	**11.5%** 7	**100%** 61
Numbness in hands or feet	**29.0%** 29	**43.0%** 43	**29.0%** 29	**100%** 100
Pressure in head	**13.4%** 18	**34.3%** 46	**53.0%** 71	**100%** 134
Respiratory problems	**21.1%** 19	**50.0%** 45	**30.0%** 27	**100%** 90
Ringing, buzzing or tone in ears/tinnitus	**11.0%** 18	**36.0%** 59	**53.0%** 87	**100%** 164
Tingling, burning or itching skin	**19.1%** 21	**45.5%** 50	**36.4%** 40	**100%** 110
Tingling, burning or itching internally	**27.7%** 18	**41.5%** 27	**30.8%** 20	**100%** 65

15. GROUP B: Symptom Category; click only one box:

Symptom Category

	New	Worsened	Total
Agitation	**63.6%** 91	**37.1%** 53	**100%** 143
Difficulty concentrating/attention deficits	**54.3%** 88	**46.3%** 75	**100%** 162
Digestive problems	**51.4%** 55	**48.6%** 52	**100%** 107
Dizziness	**67.2%** 90	**32.8%** 44	**100%** 134
Eye/vision problems	**57.7%** 71	**43.9%** 54	**100%** 123
Fatigue	**46.2%** 73	**53.8%** 85	**100%** 158
Flu-like symptoms	**70.8%** 75	**29.2%** 31	**100%** 106
Headaches	**61.4%** 94	**38.6%** 59	**100%** 153
Heart racing, arrhythmia or palpitations	**69.9%** 93	**30.1%** 40	**100%** 133
High blood pressure	**68.5%** 37	**31.5%** 17	**100%** 54
Insomnia	**56.0%** 94	**44.6%** 75	**100%** 168
Involuntary muscle contractions	**73.5%** 72	**27.6%** 27	**100%** 98
Low blood pressure	**41.9%** 13	**58.1%** 18	**100%** 31
Memory problems	**64.3%** 90	**35.7%** 50	**100%** 140
Nosebleeds	**75.5%** 40	**24.5%** 13	**100%** 53
Numbness in hands or feet	**60.6%** 57	**41.5%** 39	**100%** 94
Pressure in head	**76.3%** 100	**23.7%** 31	**100%** 131
Respiratory problems	**62.0%** 49	**38.0%** 30	**100%** 79
Ringing, buzzing or tone in ears/tinnitus	**67.3%** 109	**32.7%** 53	**100%** 162
Tingling, burning or itching skin	**75.5%** 80	**25.5%** 27	**100%** 106
Tingling, burning or itching internally	**77.4%** 48	**22.6%** 14	**100%**

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Online Surveys, Data Collection and Integration
www.SurveyGizmo.com

CommentsQ46, Jan30

Survey: Smart Meter Health Effects Survey (Live Dec. 4, 2012)

46. You can enter additional heath-related comments in the space provided below, including if you wish, a short summary of the impacts smart meters have had on your life. (Your entry is limited to 300 words).

ResponseID	Response
1	SMs installed 1/24/12. Felt fine until went to bed on 1/24/12, sick all night and woke up 1/25/12 really sick. Discovered SM on neighbor's house outside my bedroom window 25 feet from head of my bed. Called FPL and confirmed meter had been installed on prior afternoon. Haven't had a single good day or decent night's sleep since installation. It was a dramatic change in my health, which has continued to deteriorate. I've had a dramatic change in my behavior/personality, too. I cry at the drop of a hat. I get irritable and argumentative. Restless to the point of pacing. I've developed a cough over the last month not associated with any cold, influenza, etc. I attribute it to worsening health from RF radiation. I have lost roughly 18 years of progress in my treatment of my CFIDS and MCS. My CFIDS had been quite mild, but now is almost as bad as when I first got sick 23 years ago. My MCS has gotten somewhat worse, too.
3	Smart meters have restricted my access to friends, family, public services, and certain neighborhoods. Ban them.
6	my life is over.havent slept in 3 yrs now.my cats are being tortured by the devices as well,and there is no where to go.i have parkinsons like symptoms frequently,all good memories of my life are gone.no one left to call,no where to go,no way to get there.doctor is more harm than good,politicians dont care.billions of bats and frogs thrived here before "deployment.they and all life in the creek are gone forever now.trees are dying a slow death for miles,and if it werent for leaving a kid and 6 feline family members behind ...well...i really see no reason to live.there is no more joy in my life.it is a constant stressfull struggle each and every day with no light at the end of the tunnel.mercury/cadmium/nickel dentistry started my disabilities,and smartmeters zapped what life i had left.hope the dentists and utilities profiting enjoy their beachfront houses.their professions have cost me all hope for a normal life.if there were justice in this world,these people and their poisonous products would be behind bars.my friend has gone from 235lbs to 400+lbs. since this program started,and he will need oxygen tanks soon.his dad died relatively soon after deployment.the cells of every living creature in this state is under constant and consistent stress.god help us all
8	Type A personality, loved to work. Had had chemical sensitivity for years. Big mold toxin exposure made me super MCS and gradually EMF sensitive. Smart meters made me even more EMF sensitive, and now homeless and unable to work for the last 4 years. Biggest loss is the joy of being able to work, and to be productive, not just the financial loss which has been huge. Life for the past 4

	years has been totally about survival. Had to get out of escrow 7 times, 1/2 from mold and 1/2 from nearby wi-fi. Electrical sensitivity is real and extremely limiting - few safe places to go free of EMF. Family (except for wife, who is also electrically sensitive) don't believe me - that's the worst - because it is an intangible, invisible disability that they have never experienced themselves.
9	I am electrosensitive and have taken measures to limit exposure to EMF/RF. I do not have WiFi in my home. I refused installation of a smart meter by SMUD and have been active in trying to bring awareness to this issue. Recently via a public records request, I found out that SMUD installed a digital meter on my home in 2007 without my permission. According to SMUD, this meter sends out an RF pulse every 30 seconds . This correlates with onset and aggravation of many health related symptoms to myself and my family. My son's bedroom and bed is not far from this meter. He was entering the 4th grade when this meter was installed. In 3rd grade, he was recommended for a special program for advanced and gifted children. In 4th grade, he refused to write or draw saying, "I can't". Later, behavioral problems developed. In 2010, he was evaluated and deemed to have ADD. He continues to struggle and has also complains of ringing in his ears. He is also fatigued and irritable. I also thought it was odd that he never dreams. I believe the digital meter is responsible for this. According to my research, RF/EMF affects the brain and disrupts proteins needed for brain function. This is backed by more than 2300 research studies, many done by the Naval Medical Research Institute and Yale showing repeatable harmful results. How can this be ignored and disregarded because the FCC says 'no thermal radiation', so it's safe. This is outrageous!!! I want these dirty polluting health wrecking devices off of my home and a return to safe analog meters nationwide. No one deserves to suffer like this. Even those that do not notice the effects are still getting a cumulative exposure that will eventually cause damage.
12	Before smart meters, I had worked in an office full of computers and wi-fi and had no electrical sensitivities. I had not even heard of electrical sensitivities, and had no concerns about smart meters. Both my wife and myself began to develop mysterious symptoms that we never had before, and then more than a week after the symptoms began, we discovered that smart meters had been installed before we first developed the symptoms. Because of smart meter exposure I am now extremely electrically sensitive and can no longer safely live in our San Francisco home. I went from being a perfectly healthy 35 year old to being electrically sensitive in a matter of weeks. The limitations of this condition are extraordinary. I do not know how much longer I will be able to work at my financial services firm. Nor do I know how much longer I will be able to live in a city or town with a cell phone tower. Once a person becomes sensitized to microwave radiation, life becomes completely different, and difficult. I have constant headaches, unless I am in nature. My ears ring if I am within miles of a cell tower. I have fatigue if I am around wi-fi for too long. Using a cell phone for calls or internet functions has become impossible. I used all of the above technology just 15 short months ago with no problems. I had no idea such technology could be harmful. Now my wife and I search for a safe place to live and I look back fondly on the days I could use a computer without symptoms. I know that many, many others are going through similar situations - all since

	installation of smart meters. Something must be done.
15	In January 2012, during our absence while boondocking near Bouse, Arizona, thirteen smartmeters were installed within 2.5 metres from our townhouse's outside wall, in BC Hydro's Electrical Room. My wife and I have felt the negative effects ever since our return on the 29th of February, each with different symptoms. She is 71 and I am 70. Note that we do not have a smartmeter for our own townhouse unit, as this is still an analog meter, located in between the smartmeters. We call it the "Lone Ranger" and have asked BC Hydro several times to remove the thirteen smartmeters, without any response. Our initial request not to have a smartmeter was granted by BC Hydro. We are afraid that they will come one of these days and replace it anyway. Our townhouse is listed "For Sale" with a realtor. The natural gas company (FortisBC) now wants to install four AMS devices on the outside wall of our townhouse. This will aggravate the situation and decrease the "relatively safe living space" in our townhouse. We have not even been in our living room for the past half a year! One additional thing: After our return from Arizona, we started to use another car that we had bought in December 2011. This is a 2003 GMC Tracker - with more internal electronics than our former car, a 1997 Nissan Altima. While driving, my lower legs hurt in this vehicle, and never did before. Our other vehicle is a 1993 GMC Sierra 1-ton diesel truck, used to pull our 5th wheel trailer with solar panels and a small inverter. In a few weeks, we hope to test our health again by escaping our townhouse. This past summer, we went to Alberta for three weeks and our health condition improved in the trailer.
17	The side effects got worse neurologically for me it took months for me to recover after the smart meters were removed from my neighbors homes. I did not have a meter on my home. I called FPL and begged them to remove the meters that I was very ill they declined and I had a seizure and was rushed by EMS to the ER.
20	Since the smart meter GRID was placed in my community, I cannot sleep. I opted out but two of my immediate neighbors didn't. Worse, the electric poles with big new transformers are right outside my house and I experiencing an electric pulse under me all night long. I can't sleep. My CPUC complaint was ignored (I got a boiler plate response back), and I have done tons of remediation in my house to isolate the problem, and am sure it is due to the smart meters and smart meter grid. I am selling my house and moving to off grid Dominica. My survival is at stake.
22	Ability to work or find a place to work, visit friends, go to the post office, go grocery shopping, etc be active in my community or play has become impossible. I need to move again and it is getting increasingly more difficult to find a community where I can live. This is depressing enough but I worry about the depression that can set in when I'm inadvertently exposed as more and more territory around me is being installed. Now i have become so sensitized that driving through areas is incredibly uncomfortable. It sucks when you have to decide where to live based on the electric company you will be paying for service. I moved to FL for the sun and sand not expecting to get burnt and now I can't live on any stretch of coast line due to the metering. I sure as heck didn't

	expect to get burnt. What has happened to right to life, liberty and the pursuit of happiness?
23	I have never felt the range of symptoms that I did with the meters. Never had one on my home but got very ill. Only after nearest neighbor's was removed did I see any improvement. Could be life threatening if forced to have on my home, or nearest neighbor.
25	I have never lived close to a SM until Nov 1. I moved into a new house with a SM. I started having dizzy spells often right away. I own a Gauss meter and after a few weeks, thought to use it. It pegs everytime I am dizzy. The level on the Gauss meter is low (under .1 mG) when the SM is not transmitting. I am going to buy a Hf 35C reader this week to measure. There are no other strong signals, including no cell towers within 2 miles. I live 3 blks from the Governor's house, so maybe this area is relatively protected. I have some metallic material that helps somewhat. I have been wearing it on my head. Unfortunately, I have very little money right now to spend on stuff. I went to our PUC meeting a week ago and gave a statement about my health. I am writing the PUC, NV Electric, and my congressmen today.
26	I had lived in my apartment in San Francisco for 20 years. In October of 2011 Smartmeters were installed in my building. I was not aware they had been installed, and did not become aware that they were there until January of 2012. Within weeks I couldn't breathe normally, concentrate or think. I developed hives all over my face in November 2011. I couldn't eat or sleep. In December I started to get heart palpitations and shortness of breath. This was unusual for me because I am a dancer and bike rider and have always been in good shape. I was no longer able to work in my home. In January 2012 I finally discovered the presence of the smart meters; I had been having symptoms from them for about three months without knowing they were present. On Jan. 29, 2012 I moved out of my apartment: on that day I lost my home, my job and livelihood and the desire to live. I had been on the verge of a nervous breakdown when my friend Eleanor Gomez picked me up and took me to her home that did not have a Smartmeter. My symptoms began to diminish immediately. A few days later I went to the country and my symptoms disappeared completely within a week. To avoid Smartmeters, on March 3, 2012 I moved to Lancaster, PA, the town I grew up in, to start my life over again. Lancaster, Pennsylvania does not have Smartmeters yet and I am now fully recovered, although I still develop symptoms when exposed to EMF from computers and some other electronic devices. I have started my business and am fully functional and able to work and support myself once again.
27	In 1998, installed RF meters. My son, who was an infant screamed in his crib. The RF meter, was -ONE FOOT from his head. My symptoms started later when the gas company installed the 2nd meter. With tingling, burning and muscle weakness , eyes hurt, ears ring, Daily nausea and dizziness. My kids got food allergies and MCS. My kids cannot tolerate wi-fi. My daughter gets migraines and vomiting. I got a doctors note and had them all removed in 2011. We still get RF readings in our home/ I don't know if it's my neighbor's A T & T Uverse wireless system. A neighbor on each side of us has A T & T Uverse. . We are

	ready to move, as soon as we can afford to. Smart meters are making people sick and should be banned.
30	Great survey. Smart meters have ruined my ability to interact socially and go in public safely. I must avoid cell phones, cell towers, wifi, and these are everywhere. Am very upset about this. Can't travel at all, and it is progressive. Worse gradually. Smart meters still all over my neighborhood, in close proximity, even though I have opted out.
35	I am a retired police/corrections officer, with training in objective accurate observation and reporting. I trained at the State of Washington Officers Training Academy, where I placed first in my class of about 150 to 175 Officers. The questions I answered above were a description of my initital smart meter exposure, which was at my Mother's house, to a single Sensus smart meter in Benton County PUD, in Prosser WA. I had not found out that a smart meter was present until about 3 weeks after my initial exposure. Where I live now most of the time is in the city of Orange in Orange County CA, in Southern California Edison territory. I have approximately 72 Itron AMI smart meters near me in my townhome complex (I am the president of my Casitas Santiago Residents' Association). I hear a constant buzzing that is driving me crazy. It keeps me awake and makes it hard to think. I am not sure if it is an actual sound, or if it is being generated inside my head, because when I put my fingers or earplugs in my ears I still hear it. A low tone buzzing is constant, 24/7. In addition, at about every 15 or 20 minutes, a more intense whine is added that lasts for about 12-15 seconds, that hurts and gives me a mild headache which stops when the whine stops. Then in addition, between 3 and 4 AM a yet louder high-pitched whine is layered on top of the buzzing that wakes me up, giving me an instant migraine-like headache that lasts for the about 22 seconds that the louder whine lasts. Most of my neighbors were on a delay for installation and most couldn't afford any opt-out fee with the economy the way it is. My symptoms have gotten much worse since most of the neighborhood as been deployed with smart meters. For the first time I have a racing heart beat. But when I go out into the state and regional parks around me where there are NO smart meters for miles, I no longer hear the buzzing and my heart doesn't race. This is also true for my mother and for a friend that also can hear the buzzing of the smart meters. The HAN further increased my symptoms since it has been deployed.
36	Racing heart has increased severely since the installation of smart meters. I have been hospitalized several times as a result. My blood pressure has gone up and I have had a mini-stroke since the smart meter was put in. I've had to take more medications. When my daughter took me to a park area without any smart meters my symptoms totally disappeared even though I was hiking and my heart rate should have gone up. Within 1 hour of returning to an area with smart meters my irregular/racing heart rate began again.
38	The noise I have in my head since smart meters is almost unbearable, sleep is at times impossible because it is so loud. The noise only goes away or lessens when I get out of town and away from power lines, etc. My only choice seems to be to move away from town and live without any electricity at all, but am unable to at this time due to finances. I feel like a "rat in a cage!" I used to laugh

	people who told me that had electrical sensitivity and could sometimes hear electricity, and now I have become one of them.
40	The smart meter was installed against my wishes while I was out. As soon as I got home and got on the porch, before the door was even open, my face and arms started burning as if I had a bad sunburn, it intensified as I got inside. I went to see if the smart meter had been installed, and it had. It was removed about 2hrs. later, and the symptoms from it stopped almost immediately. It was also causing a lot of tension in my body, which I marked as agitation, since there wasn't anything quite like it to check. I'm not sure I could've stayed in the house the entire night with it on. I still get some problems as the powerline still pulses, though the meter is out. They are all around the valley. The fully wireless ones I expect will be far worse here. I can barely stand being here, or in town with all the EMF, 4G now. The new meters are terrible. This is a crime against humanity, with the amounts of people being affected and expected to rise to 50% of pop. in the next few years!
41	I took no notice when smart meters were attached to my house in January 2010, without notification by my utility, nor my express permission. I didn't notice that one by one, smart meters were being installed on homes to either side of mine, and all around my neighborhood. I didn't notice that slowly but surely, my entire city was being outfitted with smart meters… until one day in October 2011 I wondered why I awoke each morning feeling dizzy, with nosebleeds, blurred vision, ringing in my ears, and migraine headaches. I wondered why when I was just sitting and watching TV or reading, my heart would often skip a beat, and bizarre muscle tremors would inexplicably spasm muscles on my face, arms, legs, and all over my body as if I'd just been given an invisible electric shock. When I spent ten days away from my home and away from smart meters in Maui, I was amazed at how much better I felt. Gone were all the symptoms which I'd been thinking might have been signs of sudden aging. When I returned home, all the aforementioned symptoms returned, and I wondered what could be causing them. In January 2012, a couple of months later, I caught strep throat and felt sicker than I'd ever been in my life. Unable to feel comfortable anywhere in the house, due to feelings of pain in my head, eyes, ears, heart, and all over my body I slept on the living room floor, and turned my full attention to the question of what, exactly, was making me feel so terribly sick. I saw online my symptoms matched microwave sickness. I've never owned or used any kind of cell phone, but have had WiFi inhouse for years.
43	I can't think clearly, or find words when speaking; my body feels like it is vibrating, I can't figure out what I am feeling - then I know i have to get out my house for at least the day, or leave for a few days. I can't tell what I'm feeling...in overwhelm.
50	I am and always have been an EXTREMELY healthy, fit and active individual. I did not for one moment expect that I would be effected by EMF exposure because of the level of both physical and emotional health that I enjoy. I have consciously chosen to avoid EMF exposure in my home as much as possible, for my own benefit and ESPECIALLY for my 10 year old child and his long term heath. My immediate concern about the 'wireless smart meters' was primarily the

	fire hazard. I have stood firm in this, and to date I do not have a meter on MY half of the duplex I live in. I discovered the new meter had been installed on my neighbor's half of the home, 2 weeks after the installation. It is 5 feet from my livingroom couch, and less than 20 feet from my bed. I have never, ever, ever in my life suffered from sleeplessness, insomnia, or headaches. I experienced my first sleepless night the same night the meter was installed. (When I discovered the meter - 2 weeks later - I had a discussion with my neighbor and the installation date was Exactly the first night I couldn't sleep.) It has been 6 weeks now since the meter was installed, I have NOT had a full & deep nights sleep since then. There is a constant mild pressure type headache in my head. I have extreme difficulty concentrating on business tasks, which is not good as I work from home! The meter on my building is one, and there are 2 others in close proximity, my neighbor on the other side, and the house directly behind mine. ***Note the survey system forced me to pick a 'state'. I live in Canada, Not Alaska :-)
54	My whole life is changed because of smart meters. I did not receive proper information about smart meters and the possible health hazards they may cause before consenting to the device being installed. Now I have been stuck with the devices not only on my house, but on my neighbors' houses for 4 months. I am positive (as a healthcare professional) that I am now "electrosensitive" and that my exposure to the radiofrequencies from the smart meters have caused this condition. I have called the utilities numerous times, testified before and submitted comments and complaints to the PUC, and notified my local and state government representatives and media about my health concerns related to this device. Still, after 4 months, my 2 year old daughter and myself are subjected to these obviously unhealthy levels of radiofrequencies whenever we are at home 24 hours a day, 7 days a week. This is clearly unethical. Apparently the PUC and NV Energy have finally drafted an opt out program where we will be able to receive a "non communicating" meter at an additional cost. But I am unsure of when this will actually occur and appalled that my and others' health conditions due to this device have basically been ignored this whole time. This is a huge public health concern. The scientific evidence is growing that there are indeed non-thermal biological/cellular changes produced by low level RF, especially the type of "pulsed" RF that the smart meters emit. I hope that Maine and other states do the safe thing for the public and call for moratoriums on these devices until the appropriate amount of data can be gathered to make further decisions. Until then I live in fear of what these devices are doing to myself, my child, and everyone else.
57	since smart meter installed I've become progressively more EMF sensitive; this summer I visited a friend in a WiFi city (Mpls, MN) and now I have symptoms when I'm in the kitchen (meter on outside kitchen wall) after 10- 15 minutes. #20 dizziness decreases within minutes but blood pressure can stay high for hours after a significant exposure. #39 I greatly limit my time in public bldgs. eg. My local Costco installed WiFi in the last month or so and I didn't know there had been a change until I recognized the symptoms of dizziness and disorientation after a half hour of shopping.
58	we were able to get the smart meter off within 15 months of it's placement

	because it caused interference with our garage doors (caused them to open and close at all times of day and night) That's how we discovered for sure it was the sm that caused the insomonia and headaches.
69	I became electrically sensitive almost immediately upon smart meter installation. My ears buzz, hum, and click constantly, pressure in the head and ears, racing heart, and pressure on the chest, agitation and irritability all since the electric PLC smart meter was placed on my home. Idaho Power and the Public Utilities Commission have denied my requests to allow me to use an analog meter, and now gas and water are installing their meters.. There are hundreds of antennas/transmitters which have recently been installed around town to go along with the meters. This makes it impossible for me to enjoy walking my dogs in my nieghborhood or garden. The songbirds have even left. I can no longer attend church or go about my daily bsuiness without being negatively affected by these new devices. I was able to vacation recently where there was no smart meter installed and it felt as if a vice had been loosened from around my head, The buzzing in my ears stopped after a few days. It was life on earth as it used to be, but then I had to return to this new reality and be tortured again. And to add to this torture, I haven't found a local doctor who understands ES, and most people think it's just all in our heads because they don't "feel" it.
73	SMs have changed my life. I have been sick in my home for over two years, unable to attend concerts/shows/museum exhibits or go to restaurants/malls/stores at will. My work has been attenuated to a minimum; my income has been slashed considerably. I continue to experience intense pressure in my head and ringing in my ears. My home of 35 years is no longer a sanctuary for me. I worry constantly, especially for the young people whose bodies are developing in the presence of unbridled wireless technology.
75	I contacted the Electric Co-op after learning of the smart meter and conducting my own research on SM's. I expressed my health concerns to them. They were unsympathetic and stated they have spent a large sum of money to install them and removing them would not happen. I also received a letter from their eng. dept. stating they did their research, found the type of smart meter used to have NO side effects and to keep in mind that they also have families they are concerned about as well and would do nothing to jeopardize them such as placing SM's on their homes and affecting their families. I have been searching for a measurement meter to actually measure the output of these smart meters but so far have found nothing that will perform this task. I also spoke to one of the managers at the Coop about SM's, his comment was: We've spent too much money to even consider removing them.
85	I first noticed the Smart Meter problems because the meter caused havoc on the electricity in my house--flame came out of one socket and other sockets became totally unusable. I had that meter replaced with another Smart Meter--I had asked for the analog back and thought they had put me back on analog but I discovered that they had covered the Smart Meter lettering with a sticker saying something else. The health symptoms manifest GRADUALLY so it would be easy to not notice or to say it is just old age. That is why this technology is so dangerous--it is eating away at the health of everyone because our brain and

	entire nervous system are electro-magnetic. This technology is dumbing down the entire population.
87	I could not sleep for more than 4 hours at a time. Since moving to a home in a smart meter neighborhood (APS) with an analog my arms legs and forehead go numb. My 14 year old son has the same problem only when visiting.
90	Living in fear of a fire. Having many electric items fail and malfunction. I listed all of them with the Michigan Public service Commision but nobody cares. My health was very run down due to trying to inform 50 of my neighbors last January 2012. Not one person knew anything about these deadly meters!
91	the sleeping issues are out of hand. My brain feels like it is flipping inside my head when I lay down, I am dizzy when I get in to that half of my bedroom to the point of having to hold on to things and I am so restless it is not funny. I wake up constantly, and my back is always extra stiff. I know about the dates because a man came to "check the meter" on our gated property when we were leaving, It was a couple of days later afyer the symptoms started that I went and saw that I had a new meter outside my bedroom, which I only checked because I could not understand the dizziness, which is scary. I actually thought I had a brain tumor all of a sudden. I can sleep anywhere else with no problems, ie: car, work, and I experience no dizziness or "brain flipping" anywhere else. This is very disturbing.
92	All symptoms except the tiniitus (buzzing in my ears) have gone away since the removal of the smart meter
93	I have constant head ringing (not tinnitus - ear ringing). Feels as if I am drugged all the time with this high pitched frequencies overlay on my awareness. Low attention span, poor memory, fatigue, and attitude affected. Some days worse than others. Looking for place to move - extremely difficult in Southern Calif where is high density, w/o moving far away from my place of work.
97	The smart meter killed my father and our family cat, and we almost lost our daughter. It gave my mother instant dementia because it was mounted on the wall behind her reading chair where she sat each day. I can't work and now I am a care giver for my mother. One hydro executive told me the meter transmitted every 4 hours. Another executive said it transmitted every 2-3 hours. The CEO told me it transmitted every hour. In fact it was continually transmitting. They also said the meter company was financially sound and made the best meters. I later found out the Sensus meter company was millions in debt in 2008, 2009, and Mar 31 2010 their indebtedness was $465.9 million dollars. Their own engineer said the Flex Net icon meters are dangerous and had 20 times the defective issues and were never safety tested. Peco Energy in Pennsylvania have recently removed 186,000 Sensus meters for starting house fires. Peco hired 3 independent companies to run safety tests and the meters failed. The metering manager at hydro said the meters are volatile and can explode if dropped. They also had solder & flux problems. These issues were identified by the Sensus engineer & he was fired. The meter robbed my daughter of her career. She graduated from university on the Dean's Honours List and was going for her masters when the meter was installed. She became so sick and it prevented her from entering the program because she couldn't think straight or concentrate, let

	alone use a laptop in school anymore. The smart meter has caused nothing but death and destruction in my family but nobody will listen to us. The city won't listen to our health issues because they own hydro and have the most to lose.
98	Making me lose enough sleep and feel sick enough during the day that I cannot wait to get outside away from these that are in buildings as well as my own home, and making me unable to consider taking a job which I NEED to get because I feel so ill/weak around them.
101	It is not uncommon for me to receive a piercing pain by my temple and have bouts of nausea all day lasting 2-3 min. I have documented my EMF sensitivity with my doctors, both of whom have removed smart meters from their offices in response to numerous patient complaints. I have a masters degree in psychology and have studied enough to know that I am being affected by something external. Perhaps I'm particularly sensitive, but should extra-sensitive humans be summarily dismissed just because the majority of the populace seems unaffected? I think not.
102	I really wish my ears would stop ringing
103	The Smart Meters , six of them were placed on our one Bedroom Quadraplex's unknown to us living there. The Harbor Springs, Mich. utility company put them on in February 2010. I reported to my doctor that I was waking up suddenly for some reason about every hour. I was tired all of the time , increased body temperature. Almost like I was having hot flashes...So she sent me in for a Sleep Apnea testing and they said for some autonomic reason I was waking up and going into REM or DREAM sleep. That cost my insurance $ 5,000 for the test plus the doctors were $750 and I had to have it done again with the C-Pap machine cost $1500, plus ordering equipment every month. I complied with it the program wore it every night but I was still waking up, according to my print out...but the machine was also giving off EMF's I think...It wasn't until I went to put my rakes away in the room where the water Smart Meter was with the manager of our complex and saw the square black box....I said to John what is that? He said it some new meter that the city put on last February. I looked at the label on it , took down the ITRON numbers and looked them up on the Internet...I called them many times and spoke with sales people, warehouse man, security officer, who described the lab where they are made that they line it with Copper in the lab so they don't get ilil from the EMF's when they test them....he then gave me the salesman whom I spoke for several hours with He and Harbor Springs City manager kept saying they were safe according to W.H.O. The City Commissioners were very snotty.
104	I was exposed to three digital utility meters, 2- AMR and 1-digital which the utility co. claimed, had no antenna. All of these meters made me sick. In 2007, I first developed heart symptoms at our weekend home, where the AMR meter was 150 feet away from our house, connected by underground wiring. I had my heart checked. Doc found no heart problem. Everything got worse after the utility co. installed an AMR meter at our full time home. In 2010, I was able to convince them to remove that meter but they replaced it with another digital electric meter which they claimed had no antenna and no RF. Still I was so ill, I thought I was going to die. They finally removed all digital meters and replaced

	them with analog meters and the worst of the symptoms have never come back. Now the utility companies in New York are refusing to remove any more meters, including on homes where doctors letters have been presented. I also had to present a doctors letter which I found to be disgusting. What right does a utility company have to my medical information?
105	Smart meters have directly effected my life, making it nearly impossible for me to live in society as we know it. I am unable to sleep in places that are near these meters, cannot work near them or be near them at all. I also cannot drive past them sometimes without getting hit with their pulses. They have made my life hellish.
106	I filled out my survey for out family cottage property, because before smart meters all my es symptoms would disappear within 24 hours of arrival. I have suffered from worsening rf exposure-induced tinnitus over the last 6 years, and it was wonderful to have it disappear completely at the cottage. My well-being would also increase markedly whenever I was up north. Once smart meters went in, my tinnitus got worse when I was in the cottage - very high-pitched and loud. If I managed to spend the day away (canoeing or hiking) it would go away, but come back overnight - very clearly caused by the smart meter. It is very sad to have a refuge of sorts ruined by smart meter technology. We have measured a series of rf spikes from the meter about every 2 hours on our Cornet - the highest ones just over a milliwatt, more often in the hundreds of microwatts. But my es was probably initiated by living about 400 meters from cell towers for a dozen years. (I have never used any wireless technology and never had even a microwave oven in my home.) (i have given my Toronto address. Cottage property is 66 Suter Drive, Kawartha Lakes, Ontario - don't know the postal code.)
107	I no longer stay with family and friends who have smartmeters on their homes and I avoid businesses where the meter is near to where I would have to be. When I travel I request a room that is furthest from the meters. My main symptom is that I cannot sleep when I get in a high EMF/RF environment.
108	The smart meters on and near my home cause me to have sporadic irregular heart beats which stop as soon as I move away. I also experience respiratory problems when in close contact with the meters, usuallt when I am working out as the area is just below where the meter is mounted on my home and just 15 feet from my neighbour's.
112	The EM1000 is transmitting information along the power lines and the radiation is being fed back into our house wiring. Since the metres have been installed I get extreme electrical fields throughout our home, throughout ceiling and power points there is 1,000 volts/metre. My tinnitus screams all night as the metres are turned ON from 11PM and continue all through the night. I am continually restless and I can't do anything about it.. My symptoms I judged as "ten out of ten"
119	Since Smart Meters went into our neighborhood, my insomnia, memory problems, inability to focus (ADD?) and daily massive fatigue have reduced my ability to do productive work to almost nil.
124	I want to move but don't know where to go because of smart meters. My house

	does not currently have a SM although I had a digital and it blurred my vision instantly. It took 2 years to figure out what the problem was (I'd never heard of EHS). I'm most sensitive to WiFi/high level EMR, so cannot attend community events where WiFi is installed or everyone carries a cell phone, including hospital, university, schools, community centre/pool, coffee shops, public transportation, many restaurants. I get nauseated, dizzy and early Alzheimer's-type symptoms depending on strength of signals and duration of exposure. 45 minutes is about my limit, although I react instantly on a low-cloud-ceiling dry day. Can no longer volunteer with Operation Red Nose or folk festivals, or join social clubs that meet in WiFi environments. Can't visit my family because they have wireless stuff everywhere, smart meters, and telecom antennas nearby. Very lonely and frustrating. Met an EHS friend outside Starbucks one dry, low-ceiling day, and felt an energy cloud as I got out of my car, like opening a sauna door and the heat blasts out. Wifi'd grocery store is opposite Starbucks across parking lot, so I waited in the middle; when she arrived, we left ASAP. I itched instantly and would have been "sick and stupid" if I stayed. She's much more reactive than I am, so I'm very lucky so far. Phone me if you need higher level permission; I want to think about it.
125	My own smart meter is not yet transmitting due to hilly area. Had exposure at medical clinic which made me start reacting to my cordless mouse. Changed to corded model & covered in foil to aleviate symptoms.
126	I have lost my sense of overall peace, contentment and security in my own home. My house used to be a place of comforting refuge and relaxation. Now, it is a place I must reside, knowing I am radiated throughout the day with a toxin that probably will cause me cancer. In addition, the first two months after the meter was installed, my dog frantically pawed me throughout the day as if there was a fire in the house and she wanted to get out.
127	From the day the SM was installed, my whole family developed very strange symptoms. Severe ear ringing me and my 9 year old son) and dizziness (me), migraine (my husband), anxiety attacks and heart racing (my son), flue symptoms (whole family). Our 8 year Scottie dog developed bladder infection, didn't come out under the dresser and died 6 weeks later on kidney failure. The reason why we know for sure that all those things must have been triggered by the SM was that we only found out that we have a SM after one month of the symptoms above occurring. We didn't know why we had them until we made the connection. We immediately started to eliminate every additional EMR exposure by hard wiring our computer and phones, covering the SM and the walls behind it with Mylar sheets, started to detox and take additional antioxidants act. The symptoms got better within a couple of month. Unfortunately it was too late for our dog!
129	Have had three years of Nursing. Seem to be getting worse with the MCS. It is hard to avoid everything. Chemicals toxins-pesticides-fragerances food-paints- I feel the smart meters have added to my symptoms & we should not be charged to change.
130	Before the electric meter went in I had MCS, several years back. I did not notice any microwave/electrical sensitivity until after the smart meter was in. Another

	factor was exposure to alternative test using machine (Vegga) with small current. After that, electrical (computer) symptoms noticable. Since exposure to pulsed microwaves is cumulative, the gas and electric meters (before I was aware of any problem) were exposing me 24/7. After I got headaches using a cell phone once in a while, and nerve/muscle stimulation/joint stiffening in WiFi, I figured out I should avoid these exposures. So, I fought installation of the 3rd smart meter for water. I opted out in 2010. But when my neighborhood all got them the environment became really bad in my home, too. (see form for symptoms) Recently after wireless county-wide broadband went in our home readings for ambient (non-smart meter) levels went from 6-8 µW/m2 to 50-120+ constant levels on every floor and outside. Now I cannot sleep without muscle/nerve stimulations. Must take sleeping pills and they do not help enough. I want you to also know that in Sept. 2012 when 4G phones rolled out in our area my home has become even worse as neighbors got them. These emissions paralyze my nervous system on top of stiffening my chestwall, etc. IN MY OWN HOUSE depending upon who is using these devices nearby. Our house acts like an antenna, and I can read emissions (including broadband pulse) ON OUR WIRING. Where can we move in Wisconsin? THey love wireless broadband and plan for it. People love the new phones. Would a forest protect me enough? We have to smart meter OPT OUT in the state, though I have been trying to get one.
133	The exposure/reactions noted were experienced at a small apt-building that I own at 115 Linda Lane, Palm Beach Shores, FL 33404. Four other apt-buildings East/West/NEast & NWest have 17-meters facing a common property line. I used to live there and now rent the property. If I lived there now I don't think I could survive. My greatest personal physical fear is that the bloody mucus that comes from my nose after a day of exposure indicates that capillaries in my brain are vulnerable. When I did major fixes of the apt recently, I had to budget my own exposure and take days off or take breaks at the 'safer' end of the property. I used every energy routine I knew to help maintain resilience on an hourly basis. I became irritated and literally screamed reactively to frustrations at home - these outbursts were so unusual and disconcerting to me. I thank God that I didn't have to sleep there. My handyman-helper experienced either headaches or major respiratory problems repeatedly after working in the yard near the meters. We moved his work area. PLEASE NOTE: the original 5 meters on my apt building were the GE AMI/SSN type. I had them removed by FPL within days of the first time I went to the building and felt them (immediately). But the 17 others closeby on neighbor's buildings are these GE AMI/SSNs. The replacements now on MY building are 4-Itron Watthour Meters with under the bar code: 1NS310047965UWSS and 1-Landis & Gyr code NXL092225647UWLL. I spoke up at a town meeting recently. I know via my ES-journey with uninformed doctors that it is easy to be misdiagnosed/fall into a vicious cycle of erroneous causes & effects...all costly financially and to one's health, confidence and quality of life.
134	If I do to somebody else's house or even to Loblaws for a few hours I do not have heart palpitations, nor seizures, nor high blood pressure nor do I get dizzy. After a few hours my body is relaxed.
135	During the week I had a smart meter on my home I was unable to relax enough

	to sleep. I could not focus on any project long enough to complete any task during the entire week. I am electrically sensitive, but during the week we had the smart meter, I found that I was unable to use a computer, cook on our electric stove, watch tv, or use any other electrical device. It seemed to me that the smart meter was causing a "dirty power" current on the wiring inside our house.
141	Smart meters and the Tropos used for transmission to the Utility have dramatically impacted my life. I am never feeling well in the City in which I live. I drive much further for all services to be out of Naperville. I cannot sleep at night, have pains in my chest, have headaches, have respirator trouble, have increased allergic reactions to foods and the environment, I have coughing fits that make me feel as if I will not survive, my memory which was unusually sharp is now failing, my hearing is getting worse. These last two symptoms effects my career as I am regularly interviewed on the radio and do phone consultations. I cannot even leave the house to walk down the driveway to the mailbox without suffering symptoms which sometimes cause me to have to go to bed for a few hours. I cannot sit on my porch or work in the yard because of he neighbors smart meters. I hesitate to invite people over to my house as they suffer from headaches, pressure in their chests, and pains in the neck and shoulder area. I no longer invite friends to stay over as they suffer symptoms and cannot sleep.
143	My cat has also developed a horrible case of ES (on the farms it is called "stray voltage") and she has as many or more symptoms as I do. She is the proverbial "canary in the coalmine." The smart meter is on the north side of the house and she used to love to sit in the window on that side of the house, looking out the backyard. Now she spends all of her time in the room on the south side of the house, as far from the smart meter as she can get. This is absolutely NOT a coincidence. I have tried for 2 years to get Xcel to remove the smart meter and install an analog meter, but they insist the meters are safe. The Wi PSC has been worse than useless and continues to parrot the company line.
144	I can't tolerate wireless & have to leave any area with it. If a smart meter were put at my home I'd be forced to leave or be without any electric service as it makes me that sick. And in Tucson heat above 100 that is also impossible. Smart meters are deadly for people like me & I don't want my life destroyed by them. I must have an opt out. Also our nation needs to realise what all this wireless does to young children & wildlife & our pets who can't even speak for themselves.We already have too much wireless in our cities as it is with cell phones & wifi that are already affecting many & most don't realize that is the cause of why they don't feel well. To add in any more is absurd & the bad repercussions won't be known until afterwards.
148	I feel the SM's have added way too much to the EMF in our homes through long range transmitters. Everyday short range ones never bothered me. When the SM was installed I noticed many health problems arise.
151	All I can say is Thank GOD I don't have a smart meter at work from the way I feel at home or I'd lose my job! Being 'brain dead' at home is one thing, being that way at work would make me unable to function. The effects of the smart meter follow me for hours before I feel better though, and the brain fog isn't 'clearin up' it is staying with me.

153	I had the Smart Meters installed in my home and by the next morning I had severe nausua and headaches. I suffered for three months; went to the doctor several times; trying to figure out what was going on. After reading an article in the paper regarding someone else experiencing dizziness when they walked near the Smart Meter, I had them removed. I immediately felt better, no nausua. Had them installed again hoping to avoid the extra charges, and immediately got sick again. I object to the charges to opt out and the monthly charges....I have read the meters in my two family for over 40 years and I am now being charged by CMP to read them when I still have to read them myself....what a scam!! They really pulled the wool over the Public Utility Commission!!!
156	Exposure to smart meters in a new apartment tipped me into severe EHS within two weeks- at 30 days I was convulsing, and my cat died, too. I fled to my sister's where the local PUD tried to help me by replacing the old house meter (leaking dirty electricity) with a smart meter. I almost died from dropping into a coma-like state, but they returned a better analog; within seconds I came out of the fugue. But 25% of my hair immediate fell out. I had to quit my work, my Masters program, quit my rare Italian cheese importing business. Now I go to school on a disability program in order to finish my very important Master's thesis, but with entirely 'at home' study. My life has been ruined by smart meters. I can not find housing- my sister lives in a smart meter free community where the local PUD protects me from other meter exposure. I am homeless and miserable, hoping to find a farmhouse on a well and with septic with no meters.
162	I have known I am sensitive to wireless RF for over 10 years. Using a mobile or a wireless internet cause only minor irritation when used for a short duration. Going to shopping centers and Airports were not problematic. Even flying did not give me any apparent health issues. However after smart meters were installed in our street (in a meshed network) I suffered serious headaches. They have sensitized me to things that I was not sensitive to before. I get allergic reactions to my deodorant which has never happened before. I now get serious headaches when going to Shopping Centers and Airports or where there are crowds of people. I suspect this is from the wireless networks and/or mobile phones that are being used. Even after flying on commercial airline flights for 2 hours I get a serious headache that lasts for days. Every trip I make the recovery period appears to be getting longer and longer. I can no longer sleep in my bedroom or work in my home office (both located at the front of the house). I have had to relocate myself to the back of the house (lounge room) to escape the smart meter effects. It is criminal that power companies can install smart meters with wireless near peoples bedrooms that cause deleterious health effects. The burden of proof is on the power companies to provide evidence that wireless emissions from their meters are not harmful. Unfortunately here in Australia they deny responsibility and are not being held accountable by the local government.
164	I have answered these questions on behalf of my 5 year old who i believe has suffered anxiety, nightmares, skin eruptions have worsened since being exposed to the smart meter.
170	Smart meters have changes my life so severely it is hard to know where to start.

	I am very sick, unable to move or sell my home, cannot afgir shielding, finding it more and more difficult to function in an environment where they are now everywhere. Sensitized now to Wi Fi and cell towers. Insomnia, severe headaches, vision changes, dizziness, fatigue, inability to concentrate, huge hum and pressure in ears. Concerned I will have an accident, fall, driving or otherwise because of symptoms. Attempting to keep things as 'normal' as possible for ten year old daughter, I have explained as an allergy. I no longer sleep in Master Bedroom, most of the house is now unusable to me. Meter is on bedroom wall, I have had it logged and measured and exposure is dangerous by building biology standards. Effects of neighboring meters can be felt in various parts of the house. Walking down the street, I am affected by meters even across the road. I am desperate to have the meter removed and have a safe place in my home. I have no other option now but to move to a rural area off grid, but as a single parent I am locked into my current job and mortgage. Very concerned about young daughter who is so far asymptomatic. Very concerned I am accruing permanent damage with continued exposure, and very concerned I will become so sick I will be unable to work and support her. It's been a year now, I am amazed at my strength in continuing on, but fear I cannot keep going much longer. Need support from medical profession which has been very inconsistent. This is a global health and environmental issue. I hope the information you gather in this survey helps.
172	Smart meters are horrible devices They cost us so much more they were ment to save us money but they cost us so much more Money and our health
173	No. 41 (other autoimmune): vasculitis, peripheral neuropathy, Raynaud's, allergic rhinitis, reactive gastritis No. 4/29: can use only 10-year-old laptop No. 20-22: symptoms lasted 2 months after initial exposure, finally alleviated with ginkgo biloba. New exposure causes same symptoms in minutes, gone in couple hours after removed from exposure. No. 27: meter removed only after urgent pleading with utility, which is still aggressively insisting on reinstalling it No. 38: Already self-employed, from home, before smart meter exposure. No. 39: effectively disabled, but SSA won't recognize it, due to lack of hard evidence acceptable to them.
179	I have been in a guinea pig study with AMR's in our town. Here unbeknown to me i had a smart meter on my home for 22 years....continuing to have worsening symptoms each year. This was a study done in our town....must have been the before we do it nation wide campaign. I have spent nearly 50.0O0 dollars out of pocket in the last 2 years on my health. It was not until we were trying to determine cause that we found out the harrisonburg electric company had all my dwellings from 1990 on with an AMR device. When I moved to Eversole Road in Buckingham county I worsened and became ES and disabled. finally we fled the home in 2010 and I lived in a tent for months. We have y-shielded our home, but due to chemical sensitivity we are having difficulty getting back to the home for use...i live now in a trailer outside and come in to cook
181	I have MCS and the smart meters most definitely made it worse. My husband has brain cancer that has been attributed "more likely than not" to his cell phone use. We opted out (after having it on for nearly a year without even knowing

	they had done so, other than with ill effects) and have to pay. That is disgraceful. We have a small lot and our neighbor's smart meter is near our master bedroom. We are unvoluntarily being subjected to this non ionizing radiation that could kill my husband and cause serious ailments for me. The opt out is not sufficient for the health and welfare of Americans. We need our old meters back as the idea was a huge mistake and will cost more in health costs than it would supposedly save.
183	Originally there were two smart meters installed on my property which were outside my bedroom wall. Immediately after smart meter instalaltion I suffered from severe ringing in the ears each night. I think it was worse when the electric water unit started to heat up. I blacked out and now have permanent damage to my face - metal plates inserted. Powercor come up to inspect the installed smart meters and removed one of these. I also had my electric water meter removed at the same time and replaced with a gas water unit. Since this time I have not experienced any medical problems.
188	Severe headaches, gushing nosebleeds for the first time ever, flu like symptoms. They all went away when the meter was removed.
192	I was super healthy, worked for 20 years in the health care field, attended yoga class 3 times a week and hiked every weekend. Since the Smart Meters were installed and my body began to break down, I have lost my home and closed my business because of Smart Meters at my office. I run the risk of losing my marriage, too. I have cost far more in health care in one year than I had in the previous forty years, plus I am not earning, spending and paying taxes. I moved to one of the few towns without AMI meters, yet I am now 300 yards from a cell phone tower and can not recover from the AMI meters here. I have to move again and do not know where to get away from the radiation to recover. I was not notified of the installation of these dangerous meters and not informed of the location of the cell phone tower (when I first looked at the house mid-day the tower was not in peak usage.) How can stop these dangerous meters we find a safe place to live and ? People are already committing suicide because the radiation is unbearable. Everyone I have talked to with this condition can understand why. Our country will be crippled with health care costs and unemployment if some states do not take a stand and stop these installations. Maine could do very well to protect the health of it's people, protect itself from climbing health care costs and set the country back on course. The State might also attract many gifted people to flourish once more. I have many well educated family members who are teaching in universities there, I would like to see them again, too. Thank you, Beth
193	We slept in our van on the street for six months whilst trying to get the smart meter removed. We went through the ombudsman, have a medical letter from my doctor and begged for the smart meter to be removed. We were left homeless for over a year, sleeping in our van. Even a couple of hours at the house made us so sick that we couldn't stand it. We have moved interstate away from family and friends as Victoria is now full of smart meters. We gave away and sold nearly everything we owned just to get away from smart meters. One symptom you didn't mention was nausea. I got severe nausea every time I was

	exposed to smart meters. We sold our home $40,000 lower than the asking price just to get away. I lived there for 22 years without these symptoms prior to the smart meter. Over a year later we still have ringing in our ears which began with the smart meter. We don't know if we can recover fully, but are cautiously optimistic. We are hoping smart meters will not be installed in our new home, but the government is pushing for them. If they are installed here we will get 10 of them as we are in a block of units. We would most likely have to move again. Other residents wi-Fi is effecting us now. It is a nightmare.
195	Before my smart meter was installed I very occasionally experienced a light ringing in only one ear for a short amount of time (a few seconds). One month after my smart meter was installed I developed quite a loud ringing & buzzing in both ears that is present constantly and most noticeable when I'm lying in bed in the morning and at night when it is quiet. It is now always present and is still present when I am not around smart meters.
196	Prior to smart meters i was free to go for walks every day, and go out for dinner with friends, and drive around freely. I am now confined to my house and only leave to buy groceries or visit people and only with appropriate head shield protection (from head to base of neck.) I get a headache from driving past a transmitting smart meter (at 60klm p/h).
197	my smart meter was a trial version and a 'stripped down' version according to the electricity company - thus unlikely to be a health concern. I didn't know that they'd installed a smart meter and so my health issues - which started around that time - weren't connected until I'd realised that a smart meter had been installed. The 'guts' of the smart meter have now been removed to the point where a human meter reader is again required. Ringing in the ears has all but stopped and the dizzy spells are decreasing. I make the obvious connection where my power provider does not.
199	I suffered for 7 months with hives, pin pricks and crawling sensation. I lost all feeling in my hands and feet. Most of that time it was 24/7. It was sheer torture. Some days I felt that I could not get through the next hour. I had to take a leave of absence at work, move out of my home. I slept in my car in local parking lots. At some point, I made the connection that I was worse in my bed which is only a few feet away from the meter. After sleeping on the couch for many months, my body started to heal. DTE switched the AMI meter to the AMR meter in June 2012; however, the same symptoms occur again if I sleep in my room but it just takes longer than with the AMI. I suffer from migraines and pain in my head upon exposure. My memory is affected, too. I have become sensitive to electricity. It can cause pain in my head and skin problems as with the AMI only not as severe. I have family and friends who have endured the same torture. One had a nervous breakdown and was hospitalized. The other wanted to commit suicide. I worked desperately to stop her from doing so. She sat in front of 5 (Yes, five) smart meters in her office building. The meters were just on the outside wall beyond her desk. She was tortured beyond belief and to this day is extremely hypersenstive to electricity. I am so thankful you are doing this survey and I hope and pray for success. We need help. These companies are killing us. And they have the money to continue to persuade our legislators that they have a

	right to kill us slowly but surely.
201	Initially, I had to leave my home until shielding was carried out in my home. With shielding at home, I can live in it, but am not totally symptom free. When in a place without smart meters my symptoms resolve and my ES lessens considerably.
202	"Smart Meters" involvement with other longer-term effects than I've listed (though kinesiological observation does point to it) is harder to verify experientially -- e.g. loss of metabolic balance (muscle/fat balance etc) could take a great many honest nights'-sleeps to begin to recover. I haven't yet gotten time enough sleeping away from home, to demonstrate it; I don't know of an electropeaceful place to sleep, near enough to commute to regularly (even if I could afford it, in time or money).
208	Astounding impact. Lying in bed have uncontrollable jelly-like quivering throughout whole body, as if being electrified. Can feel when transmission begins - it wakes me up. Continues in waves of half hour or so.... Mainly affects me when muscles are at rest. Really concerned ... something has to be done... I have moved to the back of the house to sleep and it still has a huge impact, not as bad, but still awakens me in the same way. Worried I am now going to get sick. Have had on occasion a sense that my glands in my neck are aggravated/swelling. Please help us - Victoria has a compulsory roll-out of these things - I WANT mine reversed. This is the next ASBESTOS!
209	The few symptoms that happened first left faster - still have some memory effect - even after 7 months - And now totally unable to brave antenna - WIFI...
211	My story - http://rockfest.blogspot.com/2012/06/how-smart-meters-destroyed-my-life.html
215	It does not take a MD to diagnose that pulsing radiation from multiple smart meter installations has had immediate adverse effects on my health and well being. It is sad that there is not where to escape to for those that know that they are electrically and chemically sensitive and no one seems to care. To know that EMF has had adverse effects on my melatonin levels and made my already compromised sympathetic nervous system worse. Then to have ones eyes to change, now have floaters in left eye and new additional cataracts in both eyes that developed rapidly after the deployment of the smart meters. These being short term effects, no telling what the long term associated effects might be!
216	nerves in my leg and lips started jumping at night in bed--felt like a piece of bacon in a hot skillet. Unable to sleep do to constant zzzzz throughout home. My heart several times felt as if it somersaulted--impossible, but felt like it.
217	for tingling it began as sparadic after smart meter and while smart meter remained on my home it increased to severe and constant.Symptomatically feeling like I was holding onto electrical feed shocking down my left arm constantly & into both legs and feet randomly .Headaches were severe every day needing pain relief. After 3 months of this I opted out and had meter removed. Ringing in ears was frequently experienced.I also developed skin rashes which was totally new seems to have decreased since smart meter removed.Smart meter was less than 5 ft from my bedroom.My MD sent me to cardiologist for arhthymia & my dentist refused to do dental work due to

	heartrate told me I would have to go to ER. I learned enough in 3 months that I refuse to go in public places worrying about my health and I also will not visit peoples homes due to my symptoms I had experienced from this technology.It was all new to me and I am a fast learner who knows my health well enough to know it changed when my meter was changed.It wasn't until I researched this technology that I realized I had the same serious reactions to those who are suffering needlessly.This is a time when Science is uninformed and the people are bringing in the proof of this dangerous health threat Lets hope we will be the change Thank You
218	When they installed the smart meter on our house, my mind became totally unable to focus on anything. The company would not replace it with an analogue meter, so I camped out for a summer. Eventually we hired an electrician to move the meter to the nearest phone pole 100 feet from the house. That alleviated many symptoms, but I think many remain at a lower level due to the background microwave radiation of many homes transmitting in the area.
227	I now have a problem standing up. Called neurally mediated hypotension. I listed two of my cats (I have 3) in the "persons" section because they have both gotten very ill since the SM. One of them almost died. The other is very agitated now most of the time.
228	The wireless smart meter is illegal as applied.
231	after the first day i was getting blood nooses and not understanding it was from that im a carer so i work at home which has increased the impact , i cant use any fluro lights any mobiles , or wifi after 12 months , hair falling out serious loss of weight and ear ringing like at a rock concert , my rf tests read .0007 with 9420 spikes with in 24 hours spikes highest point read .3568 and theres no turn off period .
234	Although I have already commented in answer to previous questions, I would like to reiterate that I became aware of ringing in my head/tinnitus worsening considerably in the months since the roll out of smart meters in our area, particularly after they were installed in the two residences close to, and on either side of, ours. I have suffered increased depression, mental fog, agitation, anxiety and stress. Also a general lack of motivation, increased negativity and decrease in 'wellbeing' since exposure. Both neighbouring meters are situated close to our main bedroom. I feel they are also contributing to disturbed sleep, extreme wakefulness in the middle of the night and inability to go back to sleep once awake. Added to my symptoms. My husband also has tinnitus often, but is highly sceptical it has anything to do with the meters as he is trusting of the technology and doesn't believe in EM sensitivity, etc. Also, our dog is depressed and has suffered itching and eye problems in the past few years since the smart meter roll out commenced. He is 'getting on' in years, so I am not sure if this is sensitivity to EM exposure, or if it is just old age. However, he is not at all the happy and active and playful dog he was before smart meters were installed.
235	I have lived in this house for twenty-one years. It was first my parents house and then in November 2011, my partner bought the house. We looked for a house to purchase, but due to the MCS were unsuccessful. My parents graciously sold their house to my partner, so that I had a safe palce to live. The SM was

	installed after my partner bought the house and that is when all the EMS became difficult and TOO MANY times completely incapacitating. I have to limit my computer exposure to a few times per week to a few hours per day on those few days. It has made my job very difficult to perform. I also have increased anxiety during computer exposure and in general. Beyond the anxiety, the headaches and impaired ability to breath makes it impossible to just suffer through. If I can't breath I can't live much less try to write a dissertation! I had no idea what was causing all of this, but the timing of the EMS issues coincides with the SM connection to what was my very safe home. Do I have any legal recourse in removing the SM? My mom fought Duke for years to prevent them from hooking-up a SM to the house. My partner, Dr. Andrew Millar, did not know that a SM was an issue. Do we have any legal recourse?
239	I'm on medical leave due to a tumor I developed after the installation of the smart meter and the worsening of my electrical sensitivity.
240	Since smart meters were installed in my neighborhood in December 2010, I have averaged about four hours of light, disturbed sleep per night. I am too tired to cope with the demands of my life. My car is in disrepair and my quality of life is deteriorating.
244	My symptoms are nothing compared to those experienced by neighbors and friends on my street. My biggest issue is that of the basic civil liberty to choose what EMF devices I expose myself to, and utility companies mandating these smart meters and then charging outrageous opt-out fees sounds like fascism. I am also not convinced that my privacy is adequately protected. And then I look at my neighbor Rebecca who had horrible headaches and skin rashes when the smart grid went up on our street. I have found that her demographic (women ~60) are the most sensitive (at least in our area).
248	My health has been so affected that I am having to sell my home and move to a safer home without a smart meter. My whole life has been impacted financially, socially, emotionally, and physically. It has limited my ability to go places, to visit friends, and has disabled me to the point where I cannot work. My life has been extremely difficult and disabling for the last 1 1/2 years since these were installed,.
251	I stay part-time in Carson City, NV with my mother where there is a Smart Meter (SM) within 4' of my bed & 8' from my art/work space. No longer able to sleep or do art/work near SM due to pain surges, like electrical zaps, in my brain, which I never had before SM. Intense buzzing/ringing in ears now. Minor intermittant ringing in right ear before, hardly noticable. Foggy/groggy brain intensifies rapidly upon entering room. Irritability and aggitation occurs if in room more than 30 mins. My life force is drained out of me if near SM. Severe insomnia. I now sleep at farthest point away from Smart Meter on floor, for I could not sleep at all after 2 or 3 nights in room after SM installed. Toes and bottom of feet started tingling dramatically at night when in room near SM = 4 or 5 feet away from SM. This has happened before Smart Meter but on occasion and mildly, not as severe as it did when sleeping near SM. Heart started fluttering the 2nd night I slept near SM & only happens when I am in room near SM too long. I get more sensitive the more I am exposed to SM, I feel brain and

	ear symptoms within minutes of being in proximity. I think I feel it more strongly when it pulses out information because my head gets pulsing zaps of pain for a few seconds to a minute with pauses before more start and my ears start to buzz and shriek with different pitches of tones. These symptoms are new and have not happened before exposure to SM and do not happen when I am more than 25' from SM on other side of several walls.
253	was cofined to w/c within 1 year of moving into this bldng due to extreme dizziness/vertigo...app. 2oo4. also suffered all stated symptoms ...all symptoms dramatically worsened or returned upon installation of smart meters in nov. 2010....
267	I really just want my old analog meter back.
274	Ringing in my ears non-stop 24/7. Never had it before.
276	Smeters made me homeless for 17 months. I have lost my home of 24 years and my city of 24 years. Most of my state is off-limits for me due to the fact that the meters are installed in most of the state. I can currently function in areas without meters. This includes Los Angeles city (LA DWP territory) and Pasadena (Pasadena Water and Power). I am an 8th generation American, with ancestors who arrived pre- American Revolution. They soldiered in that war and in others to protect their descendants' right to live freely in this country. The deployment of Smeters have taken away this right from me. I have sustained many losses, including my sense of place (home), safe shelter (especially difficult as a disabled person), my possessions, my normal routine, access to the familiar, access to my support system, access to things that made my life good and happy. I have lived out of my car since August 2011 and have only just recently managed to find housing. I have Section 8 assistance and my search for housing has been further complicated by the lack of units. I am exhausted, depleted, and scared by this turn of events. I have told my elected officials in City Council meetings about what has happened to me. I have told the board of my utility company (Burbank Water and Power) and was told by one member to just move from the city; another said there was a problem in the minds of people who react to the meters. I set up a small website: smartmeterhealthalert.org. 7 out of 8 of my neighbors in my former residence in Burbank began to experience health-related effects when the meters were installed.
283	In Aug. 2011 digital electric meters went on neighboring houses. I experienced rashes which I had never had before. It was several weeks before I learned about the meters. In Nov. 2011 a meter went on my house. Symptoms worsened in the first 30 days. I then experienced dizziness and nausea to the point I could not work. I am an artist and I have been unable to do creative work for the past year. Had I not retired because of MCS, I would have to have then. A host of other symptoms also occurred. Painful joints, ringing in the ears, thyroid disease symptoms worsened, libido vanished, headaches, unable to concentrate, memory problems, lack of energy, highly reactive to chemical exposures so unable to leave the house. For the first time highly reactive to plants so unable to garden. The meter was removed in July 2012. In one week I began to feel better. After 30 days the dizziness and nausea was gone except when I was in public buildings. Other symptoms persist such as being highly

	reactive, rashes, insomnia, lack of energy, lack of libido, poor concentration. I have concluded that the exposure from neighboring houses is still a major problem. I now notice when I am being exposed to wifi or curly light bulbs because I feel worse. I have gotten rid of floresent bulbs, and cordless phones. I stopped using a cell phone (I never used it much anyway). I installed electric filters. My house is nearly EMF free now. However, I am still ill. Smart meters have made me a prisoner in my own home.
287	I have 12 SM within 20 ft. of my immediate living quarters. I live in an apartment complex. I've been here for just over 1 yr. The main issue I notice is a constant buzzing in my head. I had some ringing previously but the symptoms have worsened since moving here.
303	I have suffered from chronic fatigue for many years but after years of treatments from a naturopath (supplements, etc.) I was feeling great and feeling like I would like to return to work full-time (I work part-time). The day of installation of the SM I was home sick and recovering nicely. About the 2nd day I began to feel dizzy and experience headaches (which I never get) and very tired. Once I began to suspect the SM I tried on many occasions to leave my home and stay out (at a friend's place, for example - without SM) and I would get better. Over the past year I have learned to leave my home when I can to the point that I was sleeping in my car in the warm months because of bad heart palpitations. At the moment I have been experiencing more neurological symptoms including a lot of twitching of my face and constant numbness in my hands accompanied by dizziness. There is no doubt that the SM is responsible for these neurological symptoms and my worsening CF, which has returned with a vengeance. It has also affected my husband who has been experiencing a lot of unexplained skin rashes (covering most of his body), mood swings, dizziness and chronic tiredness. Unfortunately, he loves his technology and doesn't seem to believe me or do anything about the problem.
306	The electric company has installed and replaced our smart meter twice, because of fires started by the meters. I have chronic sinus allegergies and post nasal drip. I am also narcoleptic.
307	I have had to move my office at work to a building without WiFi because of the EMF symptoms. It is accumulative not something that comes and goes.
310	Note, I was able to stop a Smart Meter going on my residence, but my neighbours all got one. Immediately (by the next day), I had health effects from the closest one (20 ft away from the SM), so I moved my bed to the other side of my house (40 ft away from the SM). In 2 months, my health was decreasing, so I put a few layers of shielding on my neighbour's SM. I could still measure radiation through the shielding from the SM, but it was much less. 2 more months later and the shielding was not enough. My health was starting to noticably be affected again. Fortunately, my neighbour's SM's antenna was able to be unplugged. What a relief! I felt SO much better! My health was still being affected by other neighbours' SM's 80 ft away, though, so I spoke with those neighbours and I was able to shield some and other's had their SM antennas unplugged. So, the reason I have answered in this survey that SM's have not disabled me or affected my work is because I was able to disable the SM's;

	however, this is only a temporary measure until the power authority finishes their install and then "fixes" the disabled SM's (if the power authority is not stopped by legal action). ...also, I said my computer is not bothering me ONLY because I have shielding around it AND because the computer is specially chosen. The SM's have directly heightened my friends' arthritis changing their bodies from active to inactive, SM's have caused seizures in another person, and doubled and tripled the length of time that people used to normally have the flu.
318	Until I vacationed in Maui, I had gradually worse symptoms. After 2 weeks in Maui, I was better until I returned, and overnight, the symptoms also returned with a vengeance. Entering the symptoms into a search engine, EMF exposure came up and I acted, which is fortunate, because the lessened exposure has allowed me to sleep again, and soon I hope to hardwire the computer so as to eliminate WIFI.
328	We paid to have the bedroom furniture moved from the closest to the most distant room but no help until we had the smart meter replaced. Now we must buy power in advance at the store and no longer have "time of day" rates which costs us more money in addition to giving up our automatic pay which we had. Fortunately we have much space between us and the closest neighbor so if they have smart meters they apparently are not a problem.
329	There is no smart meter on my house but I still suffer the effects from smart meters on nearby houses. A City wide Wi Fi system was installed at the same time as the smart meters. I become exhausted fairly quickly when exposed to microwave radiation but not when I am at a safer location.
336	I have filed the very first personal injury lawsuit in Federal Court due to catastrophic injury/loss from smart meter radiation. Although I opted out, I still cannot tolerate living in my home because of ambient radiation from hundreds of smart meters. The Smart Grid killed my cat and gave my domestic partner a heart condition. (Did I mention that my domestic partner is a world champion athlete?) I do not use Western medicine because of my religious beliefs. I use only natural healing. I hold the belief "Do no harm" I do not believe that the profit motive belongs in any bona fide system of health care. I believe that electrical sensitivity and sensitivity in general is a blessing, not an illness. Sensitivity is intelligence. Stupidity is an illness and a curse. There is no such thing as "hypersensitivity". It is impossible to be overly intelligent! I am in perfect health. When I am exposed to toxins, my body reacts appropriately. When I am in nature, with no radiation or toxicity, I feel great! Although I am completely incapacitated when I am forcibly radiated, I am perfectly capable of anything and everything when I am not being radiated or poisoned. I believe that we should abolish radiation, rather than declaring people to be sick and disabled just because they are subjected to harmful radiation. Having said that, I may have to apply for disablity income if I cannot find a safe place to live and work.
346	My life has been destroyed. The meter ruined my health with intense onset of EHS. We fled our home. I had to stop working. We have been on the run for 3 years looking for a place to live. We lost our adoption window after finally making progress with a lawyer after years of infertility. My friends & family think I am crazy. My marriage is falling apart. as we have become complete nomads

	and my husband cannot feel what I feel, though I believe it is affecting him as his memory has slipped, he has sleeping problems, has gained weight and is irritable. I cannot be in most public places and cannot find a place to live where I feel normal & healthy. We have spent upwards of $40K trying to cope with this problem and moving around. I am sad and angry beyond belief.
348	Nosebleeds, nausea, dizziness, blood pressure low enough that I fall down if I do not lie down, ringing ears, and intermittent strong agitation have caused me to pay a great deal of attention to my environment. When I am away from wireless devices the symptoms subside and I begin to function well once again. Smart meters are pervasive and invasive. I definitely feel like a canary in a coal mine.
349	My house is awash with a low frequency noise caused by the RF broadcast over the powerlines, PLC/BPL. I first became aware of something "wrong" when I began to hear a low frequency hum/buzzing everywhere in my house. After ruling everything else out, and given my symptoms started around the same time TWACS was implemented in my area, all my symptoms fit what happens when sensitive people are exposed to TWACs. The Utilities claim TWACS is only used briefly one or two times a day but they are LYING, I hear it 24/7 and after researching the technology, it is clear they DO use it 24/7 for load-balancing and detection of outages. THe noise is very disturbing but the worst part is the severe headaches and the tingling/pin and needles in my head and shoulders. It feels like my brain is burning, it is a feeling unlike any I have had before.
352	suspect link between installation 6/12 and surgery for subdural hematoma (brain bleed) 10/12
354	It's unconscionable that these are being forced upon people and that we had to fight for months to have the right to remove ours, and then had to pay. The utilities should pay US for the permanent damage to my hearing caused by their stupid "smart" meter.
356	Had it not been for the severe nose bleeds I'm not sure I would have ever found out what was causing all of my health problems.
358	Smart Meters have runied our lives. We still have symptoms even though we opted out and ours has been removed because all our neighbors still have them and they are 10' away from our house. We are currently sleeping in our living room because it's the furthest away from our neighbor's Smart meters. We don't understand why they couldn't have used fiber optic cable so we would be safe in our own homes....we just don't get it why nobody cares and just keep adding more wireless to our environment.
362	This is the first note I ever took on my (and my girlfriend at the time's) symptoms, about 5-6 months after first noticing the initial symptoms I had. She moved in with me about 2 months before this. I have many more notes to share on other symptoms and my hypothesis on how they were occurring, etc. Feel free to call me about them. 3/7/2011 Early AM: Almost nightly 3-5 nights out of the week we notice the same oscillating tone(s): 1 HF drone (Very high…upwards of 15k, probably ~16,820 Hz.) & 1 Lower (estimated at 8kHz using Logic Pro's Test Oscillator plug-in), I was able to cancel the tone out when I matched it, but still with a phase sort of effect. It fades during day but still slightly noticeable in the house. I never hear it at school but hear it very often at the house even after

	shutting off all electronic devices and power from electrical box on house). The ringing gets so loud it can be unbearable and hurt like a stabbing sensation, other times its not painful and just annoying. My girlfriend gets the same exact ringing and can match my descrip everytime (as I wrote this the lower pitch freq. got lower to around 480-501.30 Hz range). She experiences vertigo, itchy skin, nausea. She is losing short term memory more often, and doesn't do drugs or drink. She also gets spotty vision. I experimented with 2 test oscillator plugins simultaneously generating 16,820 and 491 Hz and my Girlfriend said the HF tone cancelled out and slowly faded back in after I stopped. It affected the waveform when I tried different frequencies and made it "bounce", like effect heard tuning a guitar when dissonant waveforms are clashing. I also noticed this.
374	We got permission to remove the meter for $75 + $10/month month fee. The daily headaches disappeared. The constant headaches made my ability to concentrate and work was very disruptive to my life, and greatly limited the amount of time I could devote to the business and to teach which in turn, directly affect income and quality of life. I still have numbness but not as severe, and low thyroid--boderline.
376	Every now and then, I get symptoms associated with the Smart Meters. Even though I opted out and the electric and gas analog meters re-installed (hope they indeed are analogs), I believe that, when I get headaches and heaviness in my head and ringing in my ears, it's because both my neighbors on both sides of my house still have the Smart Meters. My bedroom is 15 feet away from a neighbors meter, and I don't sleep every night in my bedroom. I alternate by sleeping in my living room sofa, which is a little farther from my neighbor's meter.
378	Has caused me extreme anxiety and stress.
379	Smart Meters almost killed me. The night I began reacting to one that was on a neighbor's house, I blacked out and awoke with burning in my right nostril and on the right side of my brain. My Lyme doctor said I probably had a transient ischemic attack, but I can't confirm because I'm too electromagnetically hypersensitive to get an MRI or CT scan. Within 4 days after this reaction, my skin kept turning bright red and I persistently had a temperature of 103 F. After 4 days of this, I had to get completely out of range of Smart Meters & their associated 20 mile-range, 5.6 GHz repeaters on the power lines. Eventually, shortly before Maine was completely covered in Smart Meters, I had to move to another state where they aren't supposed to be installed for another couple of years. The severity of my symptoms has made it impossible for me to find a place to work. Also, I can barely eat, sleep or exercise anymore. I'm also having a lot more seizures, choking episodes, chronic fevers, chronic, bone-deep, body-wide pain, and more breathing problems than I ever used to before my Smart Meter exposure (which occurred in March, 2011).
380	The SmartMeter on our home was already installed when we moved in 2 years ago. At this time, we were already aware of our EHS symptoms. For the first 2 months after moving in, we only noticed mild symptoms in comparison to our previous residence near power lines that we experienced severe symptoms. Soon after 2 months our symptoms progressed and we didn't realize the symptoms were caused from the SmartMeter located outside of our garage. It

	wasn't until about 6 months later when we conducted research about SmartMeters that we realized the cause. There was no Opt-Out program in place for its removal. My husband and I suffered severe effects until its removal 7 months ago. We further continued with milder symptoms from our neighbors meters on each side of us and were able to convince those neighbors to also remove them. Immediately one of those neighbors suffering from insomnia noticed the symptom completely disappeared and thanked us for the insight on the issue. We finally have peace within our home now and can deal with very mild symptoms from limited exposure to other devices such as computer, cable modem for internet and kid's X-Box 360 with built in Wi-Fi. We just shut down/unplug everything when not in use!
381	I moved into my apartment almost 3 years ago, and have been trying to figure out the cause of my symptoms almost as long. There are 7 smart meters located in the building across from mine. Anytime I spend time away, my symptoms diminish. Whenever I return home they start up again. All 5 people in my residence seem to be affected, as well as our elderly neighbor and their cat passed away (which I think is related).
384	Beofore I moved to where I was close to a smart meter I could eat what ever food I liked. Even when my life was bad I knew that I could always count on good health because I took good care of my body. Since I have had exposure to the smart meter my digestion has been getting progressivlely worse. Now there is very little food that I can eat and what I do eat hurts me to digest. My stomach muscles are weak because of this. When I first moved in I would wake up during the night and my skin would feel like it was on fire. I thought that I had bed bugs. I also have bad ringing in my ears. If I eat any cooked food I will have intense pain in my stomach for a week later and I will have blood in my food as well as sometimes throw up blood. I am working on getting the smart meter removed. The owner of the house is losing her eyesight and I think that this may have to do with the smart meter. I have tested with a gauss meter and microwave radiation spikes up to a high level in my bedroom. If you would like to use this information in regulatory or legal proceedings please feel free to contact me.
385	I was living in Sonoma, CA at the time the Smart Meters were installed on our house. My symptoms would completely disappear when I went to stay with my daughter in Marin County, which had put a moritorium on installation of Smart Meters thus making it a Smart Meter-free area. As soon as I got back to my house in Sonoma, the symptoms would come on again. I moved to live with my daughter in Asheville, NC which doesn't have Smart Meters, and have only minimal discomfort from my computer.
387	I am no longer comfortable in my home, and only recently realized there is a gas meter module sending wireless information through the basement into the entire house, possibly to the AMI electric meter on the opposite side of the house. We are within 20+ feet of neighbors' homes. So our home also receives signals from neighbors' devices (including wireless). We no longer use WIFI in our home. Our cell phones are in use less than 1/2 hour per day (3 phones). We do not own a microwave. I have done what I can do with respect to

	contacting the utility with no satisfactory response from them. My next step will be to hire an electrician to obtain objective information about what is happening (radio frequency waves amplified throughout copper pipes???).
396	Previous to realizing we had our (4) analog meters replaced with smart meters on the 1st of December, I knew something was 'off'. I began experienced fatigue, feeling cold, slight insomnia, and other significant changes in my sleep which included heart arrhythmia, and swelling in my extremities (fingers/feet). In the last few weeks, I have a constant dull pressure in my head and pain in my right ear throughout the day. I've also experienced occasional numbness in my extremities during the day. I do have mitral valve prolapse, but only ever experience heart palpitations nearing the end of my pregnancies (which I joked with my husband that maybe I was, considering my other sudden symptoms.) The heart palpitations have alarmed me the most. Our children have suffered from earaches with drainage during their Christmas vacation. I stay at home with our youngest, and the two of us have suffered the worst of the symptoms. I hope to have at least two of the meters removed by the end of this month, our house was previously a duplex. I'm anxious to see if this will result in some relief. Unfortunately, these meters are located opposite the wall in our living room. We would welcome any suggestions on deflecting these emissions and safeguarding our home. In the meantime, I'll continue my online crash-course education on emf emissions. Lisa
407	After the Smart Meters were installed at close neighbours homes here in Victoria Australia I got headaches very soon. I do not suffer headaches normally when out of range of Microwave Smart Meters or these Microwave Towers now proliferating all over Australia and much of this world's countries. Please do all you can to rid all of Planet Earth of now proving to be Type 2B Carcinogen causing Smart Meters and Microwave Towers and also deadly Mobile Phones and Wi-Fi in schools and any sort of education centre and private homes. All of these machines are deadly to Humans and Animals and Insects including the much needed Honey Bee and all of God's Creatures Great and Small. These Money Hungry Chief Executive Officers of these Electric Power Companies Worldwide and their Ilk are steadily ruining peoples' lives with the actually ILLEGAL forced installation of these Microwave Smart Meters which are actually Illegal Telephone Tapping Devices which need a Judges Court Order. These so-called Smart Meters are not "Smart" in any way at all, but are damaging peoples' Health with such ongoing problems as chronic insomnia, and or nose bleeds and or extreme shortness of breath to aching hands and or pains in arms and or some, or many body joints etc. These Microwave Smart Meters are also damaging peoples' 'fridges and computers and printers and washing machines and clothes dryers etc here in Victoria Australia and in other parts of the World. Please do what you can to ban this dangerous technology which only panders to Corporate Monetary Greed and does not care about all the Health damage it is doing to Humans and all forms of LIFE.
411	I was not aware of any heart or health problems until the smart meter was installed. About a week less than 3 mos. after, I awoke one night and my heart was racing, I felt faint and frightened. My blood pressure soared, and is usually low. I was having trouble breathing. My husband called 9/11, I went to the

	emergency room, but it stopped within 5 hours. I returned home, but it happened again about 13 days later. Went to E/R again and also saw a cardiologist who put me on meds. I could not tolerate the medications, so had to have a pacemaker installed. I left the state and went to Arizona for about 7 weeks, had no problems, they did not have smart meters. I came home and went into A/Fib within a day. I have never gone into A/fib when I am away from a smart meter.
415	In June, at home, myself, my partner and the dog started having disrupted sleep patterns but did not understand why. We had opted out of the smart meter program so didn't consider that could be the reason. After a while we began comparing our meter to others but it was still unclear if we had a smart meter. Finally we called CMP and they said we did in fact have one since October, even though they had promised not to install one. We immediately requested it be removed. We still did not suspect that the SM was the cause of the sleep problems. One morning we awoke and realized we had all slept incredibly well and the dog didn't get us up in the night and have trouble sleeping. I then asked Jo-Ann if the SM had been replaced and she said it had been done yesterday. We suddenly realized that it was the SM that had been causing disrupted sleep for months, but we didn't realize it. The correlation with the removal of the SM and sudden marked improvement in sleep is impossible to ignore, especially since I was not aware that it had been removed until the next day.
416	I went from living a very healthy life working as a secondary teacher with a demanding work load. I salsa danced 3 times a week, gardened, bush walked and had no problem sleeping. Within days of my meter being installed I simply stopped sleeping. I felt wired, agitated as if I'd had 10 coffee's before bedtime. I slept 1-2 very light hours a night and within a week was taking sleeping tablets. 3 months later I was hospitalised 3 times including 3 days in coronary care with Ventricular Tachicardias (the most dangerous and potentially lethal heart rhythms that you never want to have). I had surgery to try and burn the cells in my heart that were producing the faulty electrical current. It didn't work. I continued to have hundreds of incidents of up to 1 minute VT's. I refused to go back for more surgery. I had my house metered and discovered that the smart meters were producing 1000 - 8000 microwatts per square meter every 30 seconds or so. I slept wrapped in a metal fabric to try and protect myself. Within 7 months of the smart meter being installed I'd had 12 weeks of sick leave, so I left my job in 2012. I went on a 1 month camping trip where I worked on organic farms & discovered that I could be well & sleep well away from all wifi devices. I had now become sensitive to cordless phones, wireless modems, mobile phone towers & smart meters. So I sold my house in Melbourne after living there for 14 years, moved away to a smaller city & shielded the bedroom to sleep. However I am now contemplating leaving, going bush, looking for completely wifi free environments & communities. I feel like a social refugee!
418	The impact the AMR Meters had on my life has been devastating. I was forced to abandon my home that I owned because the SCE&G/SCANA refused to make an accommodation for me and refused to remove the meters they had installed without my consent or knowledge. My history: in February of 2010 I became very sick. I had a fever and my body ached all over. Then all the joints

	in my body became swollen and incredibly painful: my fingers, hands, wrists, feet, and even my head was swollen. I was in excruciating pain. I lay in bed for six months crying. I had a rash all over my torso and arms. Due to the lack of strength in my hands, I could not drive or even peel an apple. I had the worst headache of my life. It took a year and a half for the pain and swelling in my joints to subside. I was constantly sick with colds and the flu. I had horrible nausea and fatigue. My eyes hurt and were often very red. My throat was always sore. I developed a sensitivity to sound that persists today Six months after I became so sick in February 2010, my intolerance to chemicals exploded. I developed intolerances to things that had NEVER bothered me before like commercial printing ink, chlorine, synthetic fabrics. In the summer of 2010 I began to have problems when I worked on my computer. At first it started with my face getting red and my head getting very hot after I had been working on my computer for 40 minutes or more. Then it got worse. I would experience horrible intestinal cramping, nausea and fatigue from working on the computer. The problems I experienced when using my computer led me to learn more about EMF radiation. I had all the dimmer switches in my home removed. I stopped using my wireless router, microwave oven and hair dryer. I even reluctantly gave up my cell phone! But I was still sick and I was always sick at home. If I took a long car ride, I felt better. But, as soon as I returned home my symptoms returned: excruciating headaches, muscle cramping, extreme fatigue, nausea, problems with my eyes, sweating all over, difficulty breathing and irregular heartbeats. It felt like my brain was burning. I had dry chapped lips, I was waking up in the middle of the night for no reason. I went into early menopause. On February 23, 2012, I called my utility company which was SCE&G/SCANA and asked if they had installed any Smart Meters on my home. An SCE&G customer service representative told me that yes they had! Without my consent or knowledge, SCE&G had removed the analog meters from my home in Charleston, SC and put a wireless automated meter reader (AMR) on the gas meter in December of 2009 and another AMR on the electric meter of my home in January of 2010. I was stunned to realize that the installation of these devices coincided with my becoming so very sick. I asked 3 times for them to remove these devices and they refused each time. In August of 2012, I was diagnosed with Toxic Encephalopathy (349.8) and Neurologic EMF Related Encephalopathy (348.30; E926.0). I have become Electrically Sensitive and am symptomatic around most electronic devices when they are turned on.
420	I knew I had symtoms from electrical appliances, cell phones, & cell towers but I did not know it was called electrical sensitivity. We have put up metal screens and metal sheets to shield at home. It is very hard to travel anywhere overnight because I can't be near a smart meter & never know where there will be one at overnight accommodations. All the exposure to wireless & EMS is cumulative, making life harder & harder. Smart meters are the most difficult of all the exposures because we have no choice with them. They are being put on our property against our will so there's no escape from them, & there seems nowhere we can move to get away from them either.
421	Within a few days of the smart meter being installed, I noticed ringing in my ears which I had never previously had. This ringing would disappear over the course

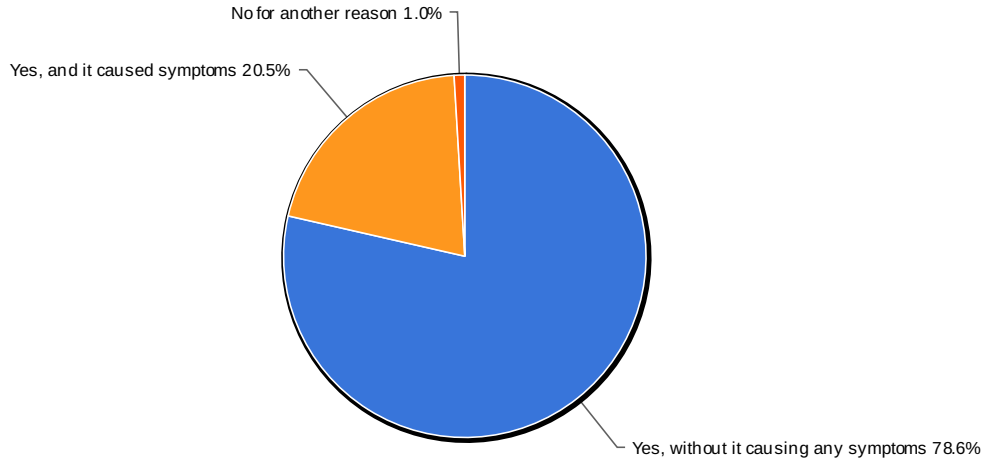
	of a few hours when I went away from our home, but would return within minutes of re-entering the home. As time went on, the ringing would take longer to leave; now it is a constant problem. I would occasionally get leg cramps prior to the installation of the smart meter; these would disappear within a few seconds. Since the installation of the meter, I have experienced intense cramping which would cause severe pain and would last for several minutes. Magnesium oil rubbed on my legs daily has helped to keep these symptoms in check. Balance problems have worsened since installation of the smart meter, resulting in several falls. Brain fog has worsened considerably, I am unable to find words for particular objects, and have difficulty remembering names.
422	I am contemplating vacating my own home because I can't live like this any longer! If I could afford to sell my home and purchase a home in an area without Smart Meters...I would move tomorrow! This meter is ruining my life and MUST be removed. I am telling everyone I can about how dangerous these meters are!!!
429	Unable to sleep in main bedrm. Have a professional who has helped lots with filters and will be removing meter from house wall soon. All at my own cost which is expensive but has helped me.
434	I have tonic/clonic epilepsy with a growth on my hippocampus (where electro magnetic radiation loves to hit). As yet, we do not have a Smart meter, but our governments (state and federal) and power company (Power Cor) are pushing us to have one installed. I am keeping a diary of the side- effects I have when I go into houses and businesses that have wi-fi and smart meters.
435	My husband & I never had any health issues until moving into our home here in Grays Harbor County. We were baffled as to what was causing all of our symptoms. The smart meter was already on our home when we bought it, but it was a little over a year before we realized it was there. We did not know what was going on with us, since neither one of us had ever experienced a lot of the issues we were having. i just know that over time it has gotten progressively worse. Now we know: constant exposure from sleeping for years with our heads right next to the smart meter. We are extremely upset! How do we get the Pud to remove it?
436	My wife and i have never had any health issues until moving into our home, in 2009. Turns out the smart meter had been there when we moved in, but we didn't find out for over a year. Very, Very, upset that we have been exposed to this for so long!!!!!!!!!!!!! Now afraid of the long term effects. We want the so called smart meter removed from our home!
437	Following smart meter installation (which we did not find out about until months later) a large number of symptoms appeared that we had never experienced before in our lives. Our suffering increased as days, weeks, and months passed. I suffered insomnia and rapid heartbeat while in bed. If I slept at all, I awoke to a crushing feeling in my chest gasping for air. I experienced internal shaking and vibrating throughout my whole body. My skull felt as though it was being split open on the upper left side of my head. Chronic headaches occurred, the back of my skull felt electrified, as did the back of my tongue at times. I woke with bumps on my forehead, red bumps and rashes on my face, and eventually both

	of my eyelids slit open horizontally. My memory became poor and I was unable to articulate well. I experienced electric shocks through my eyes, legs, and feet. Our emotions became unstable we had to leave our home to feel normal. When we returned our symptoms returned. No relief was in sight. Our health had deteriorated rapidly so we fled to California. Making the trip, electric shocks ran through my legs while passing cell towers. I began to notice painful inflammation, unbearable tones and pressure in my ears when exposed to cell phones in use. In CA I was able to find work immediately, but I felt like I had brain damage and I was not able to express myself well. The office was filled with wireless devices and with my sensitivity to wireless, electrical and magnetic fields, I found I could not hold a job in the normal workplace anymore. I do not have the ability to do meaningful or gainful work from home. Because of the mandated deployment of untested smart meters, even communicating via PLC as ours was, I have lost my home, health and ability to earn a living. This is no longer America.
438	There are 14 Smart Meters on the wall of our apartment building, all lined up in rows. Since moving in here, I have nearly constant throbbing and pressure in my head, near my ears. It's very uncomfortable, and I do not experience it in places where there are no Smart Meters (for example, the town where my boyfriend lives doesn't have Smart Meters, and my boss had his removed, and uses an EMF protection screen to keep the radiation from his neighbor's Smart Meter out of his home).

Pie Chart Summary Report CPU, Wi-Fi, Cell; Before & After - Feb 1, 2013

Survey: Smart Meter Health Effects Survey (Live Dec. 4, 2012)

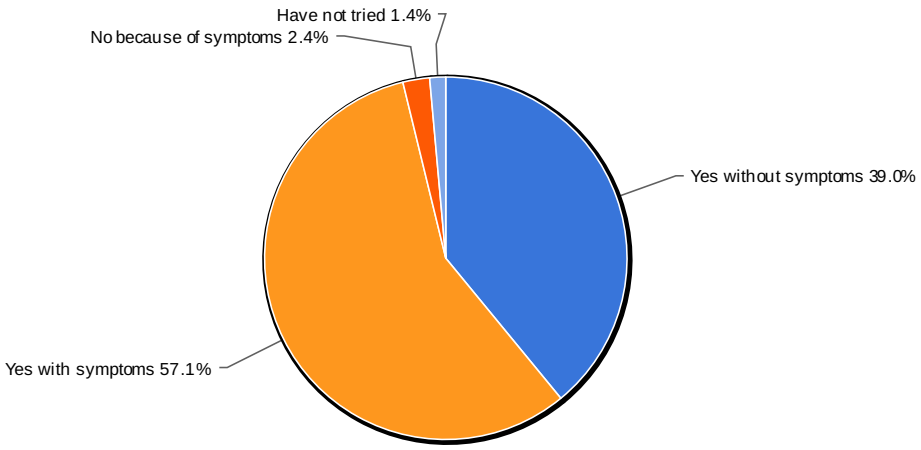
4. Before smart meters, were you using a computer?



Value	Count	Percent %
Yes, without it causing any symptoms	165	78.6%
Yes, and it caused symptoms	43	20.5%
No because it had caused symptoms in the past	0	0.0%
No for another reason	2	1.0%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

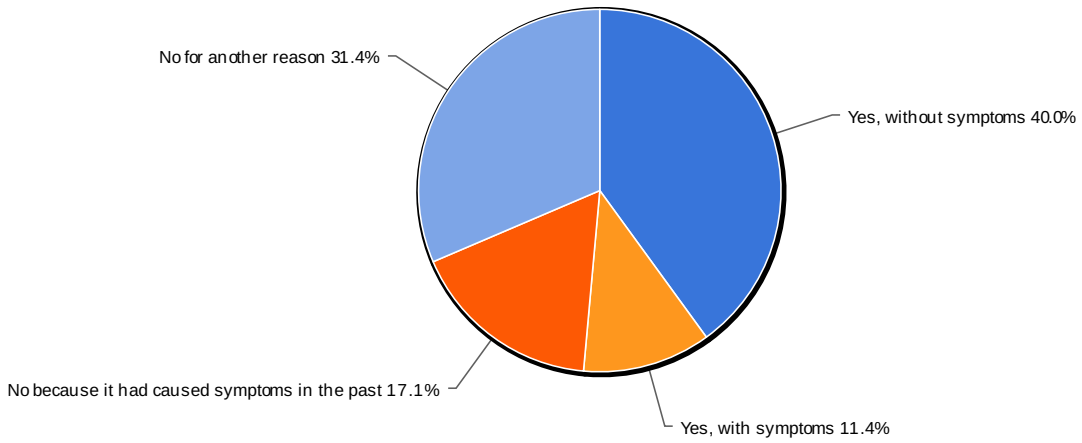
29. Are you presently able to use a computer?



Value	Count	Percent %
Yes without symptoms	82	39.1%
Yes with symptoms	120	57.1%
No because of symptoms	5	2.4%
Have not tried	3	1.4%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

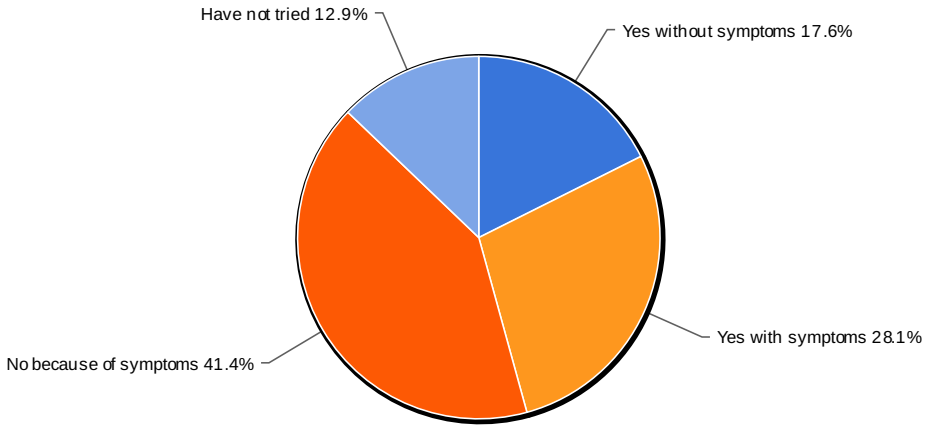
5. Before smart meters, were you using Wi-Fi?



Value	Count	Percent %
Yes, without symptoms	84	40.0%
Yes, with symptoms	24	11.4%
No because it had caused symptoms in the past	36	17.1%
No for another reason	66	31.4%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

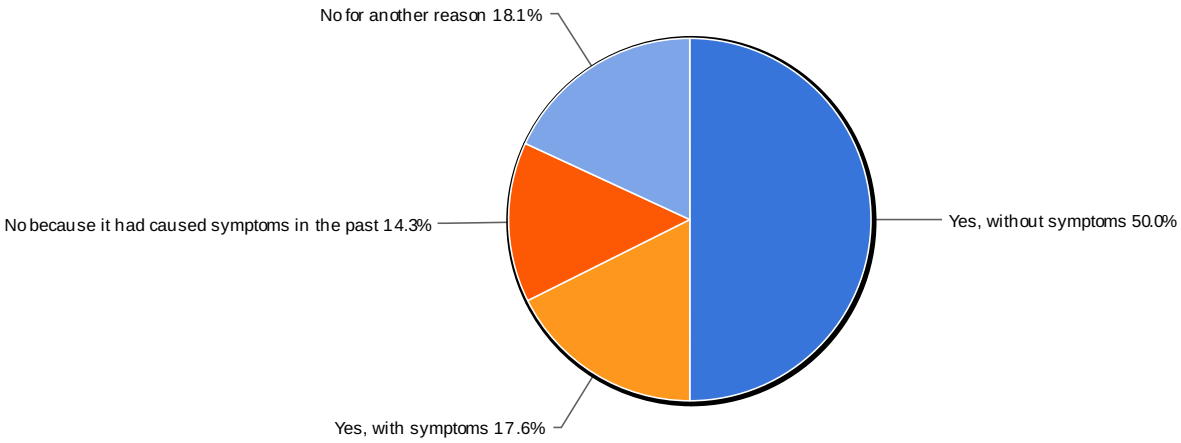
30. Are you presently able to use Wi-Fi?



Value	Count	Percent %
Yes without symptoms	37	17.6%
Yes with symptoms	59	28.1%
No because of symptoms	87	41.4%
Have not tried	27	12.9%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

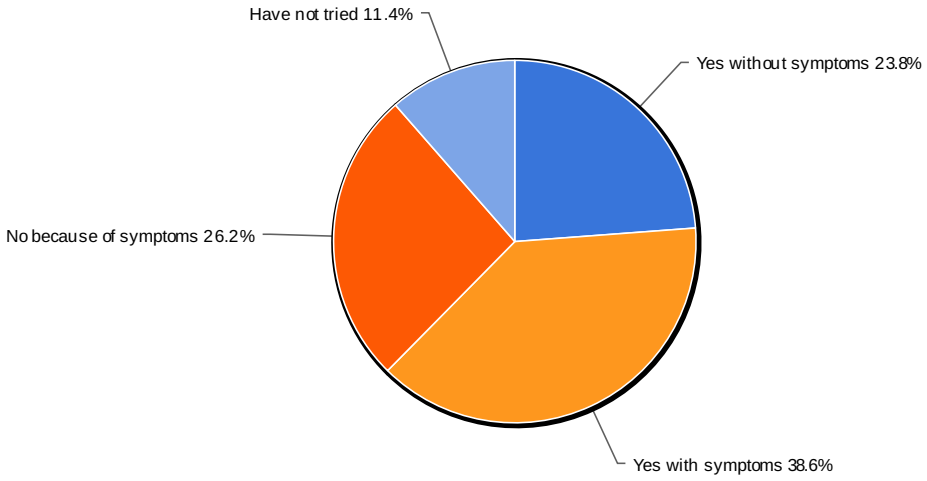
6. Before smart meters, were you using a cell phone?



Value	Count	Percent %
Yes, without symptoms	105	50.0%
Yes, with symptoms	37	17.6%
No because it had caused symptoms in the past	30	14.3%
No for another reason	38	18.1%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

31. Are you presently able to use a cell phone?



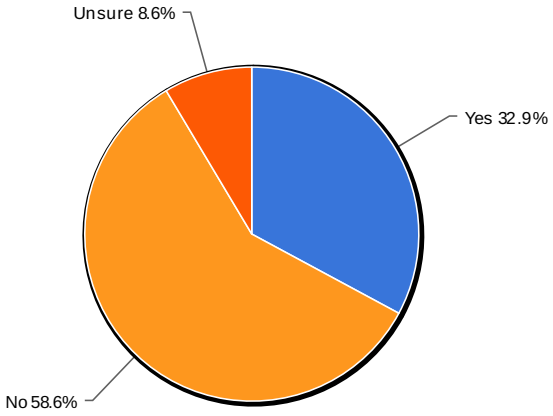
Value	Count	Percent %
Yes without symptoms	50	23.8%
Yes with symptoms	81	38.6%
No because of symptoms	55	26.2%
Have not tried	24	11.4%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

Pie Chart Summary Report. Q 2 vs Q 32, electrical sensitivity BEFORE SM? vs ES AFTER SM? - Feb 1, 2013

Survey: Smart Meter Health Effects Survey (Live Dec. 4, 2012)

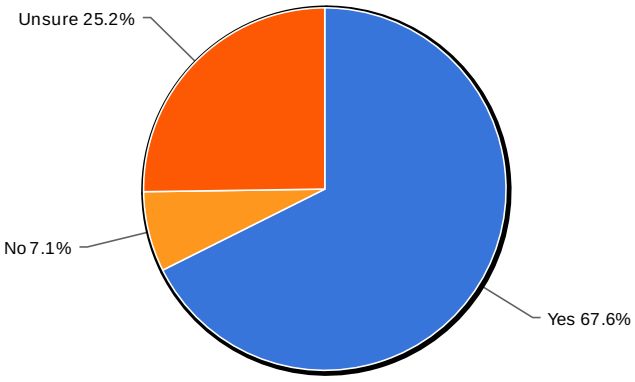
2 Before smart meters, did you have any electrical sensitivity that you were aware of?



Value	Count	Percent %
Yes	69	32.9%
No	123	58.6%
Unsure	18	8.6%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

32 Do you presently have ES (Electrical Sensitivity)?



Value	Count	Percent %
Yes	142	67.6%
No	15	7.1%
Unsure	53	25.2%

Statistics	
Total Responses	210
Skipped	0
Unanswered	0

Smart Meter Health Effects Survey (Live Dec. 4, 2012)

Page 1 of 4: Before Smart Meters, Smart Meter Info



IF YOU WILL BE FILLING OUT A HARD COPY OF THIS SURVEY BY HAND, here is A TIP to make it easier for you: when you get to Question 15, you could overlap the page containing GROUP B on top of the right side of the page containing GROUP A, with the symptom rows lined up. This way you can mark answers in both GROUP A and GROUP B across the same symptom row before moving on to the next symptom. (This is the way it would look if you were taking the survey on line, where Group A and Group B are side-by-side.)

If you do not have anyone to enter your survey answers into the online survey website for you, you can mail your marked hard copy to:

Maine Coalition to Stop Smart Meters
P.O. Box 43
Richmond, ME 04357

If you have questions, you can call Ed Freidman in Maine at 207-666-3372, or Richard Conrad in Hawaii at 808-695-1128 10am to 4pm Hawaii time.

Welcome to your survey!

If you have symptoms or health effects from smart meters please complete this questionnaire. We need your input! It will take about 15 minutes and will document your experiences in a way that could be very helpful to many people. We hope to present the results as testimony in the ongoing Maine Public Utilities Commission investigation into the safety of smart meters, so please submit your completed questionnaire before January 15, 2013. (If you do ***not*** experience health effects from smart meters please do not fill out this survey, because it is about health effects only and is

not a prevalence survey.)

OVERVIEW

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Abbreviations and Definitions

n/a: not applicable.

Smart Meter: any type of wireless or wired smart meter or digital device that meters electricity, gas or water

EMF: Electromagnetic Fields (generally equivalent to the term EMR or Electromagnetic Radiation; RFR or Radio Frequency Radiation is a subset of EMF)

ES: Electrical Sensitivity (sensitivity to EMF; ES is also known as EHS or EMS)

Symptoms: adverse health effects: uncomfortable, painful or debilitating physiological effects correlated with proximity to smart meter(s), taking seconds to months to occur. A symptom could be either completely new (never experienced before), or an intensification of a symptom experienced previously from any cause.

HELPFUL TIPS: You can click on the answer button or on the text of the answer.
If a question does not apply to you, please select "Don't know or n/a" instead of leaving it unanswered.
Please don't rush, take your time, and if you need a long break while completing the survey, click on the "Save and continue later" text always present in the dark blue border at the very bottom of your screen (on pages 2, 3 and 4 only).

A CAUTION ABOUT DROP-DOWN MENU QUESTIONS: After you select your answer, please double-check to be sure the answer that shows in the box is the one you meant to select.

Before Smart Meters

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1. Before smart meters, what was the general state of your health? *

- Excellent (and no Multiple Chemical Sensitivity, chronic fatigue, fibromyalgia or known autoimmune disease)
- Good
- Fair

- Poor

2. Before smart meters, did you have any electrical sensitivity that you were aware of? *

- Yes
- No
- Unsure

Before smart meters, did you consider yourself to have ES (Electrical Sensitivity)? *

- Yes
- No
- Unsure

Before smart meters, had you ever heard of electrical sensitivity? *

- Yes
- No

3. Before smart meters, did you have any concerns about EMF (Electromagnetic Fields) from smart meters? *

- Yes
- No

4. Before smart meters, were you using a computer? *

- Yes, without it causing any symptoms
- Yes, and it caused symptoms
- No because it had caused symptoms in the past
- No for another reason

5. Before smart meters, were you using Wi-Fi? *

- ○ Yes, without symptoms
- ○ Yes, with symptoms
- ○ No because it had caused symptoms in the past
- ○ No for another reason

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6. Before smart meters, were you using a cell phone? *

- ○ Yes, without symptoms
- ○ Yes, with symptoms
- ○ No because it had caused symptoms in the past
- ○ No for another reason

If you were using a cell phone, how would you characterize your cell phone usage? *

- ○ Less than 1/2 hour/day
- ○ 1/2 to 2 hours/day
- ○ More than 2 hours/day
- ○ n/a

Smart Meter Information

If the smart meter(s) around you were installed or activated at very different times from each other, please choose the installation/exposure that most affected you, and *consistently* base your answers on only that. *(You can use the comments section at the end of this survey to elaborate further if you wish).*

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7. Roughly what was the total number of smart meters within about a 50 foot radius around your residence, including those (if any) on your residence? *(Please review your selection to be sure it is correct.)* *

- ○ Zero
- ○ 1 to 2
- ○ 3 to 5
- ○ 6 to 9

- 10 to 29
- 30 to 99
- More than 100
- Don't know or n/a

8. How many of these smart meters were on your residence (or on your building and relatively close to you)? *(Select "Zero" if none).* *

	Number of Smart Meters
Electric	
Water	
Gas	

9. Concerning only the smart meter(s) that most affected you, about how long after smart meter installation or after beginning of exposure, did you discover that the smart meter was present (by actually seeing it or being told about it)?
(Please read the answer that remains in the dropdown menu box after you make your selection, to be sure it is correct). *

- At the time of installation/start of exposure
- Less than one hour after installation/start of exposure
- Later on the day of installation/start of exposure
- The day after installation/start of exposure
- 2 to 3 days after installation/start of exposure
- 4 to 6 days after installation/start of exposure
- 7 to 13 days after installation/start of exposure
- 14 to 28 days after installation/start of exposure
- 1 to 2 months after installation/start of exposure
- 2+ to 3 months after installation/start of exposure
- More than 3 months after installation/start of exposure
- Don't remember or n/a

10. What was the Brand/Manufacturer of the closest Electric smart meter? *

- ABB
- Centron (Itron)
- Elster
- GE
- Itron
- Landis+Gyr
- OpenWay (Itron)
- Schlumberger (Centron)
- Sensus
- Siemens
- Tantalus
- Westinghouse
- Other Brand
- Don't know or n/a

If known, what was the "Other Brand" of the closest Electric smart meter?

11. What was the TYPE of the closest Electric smart meter??
AMI = *Advanced Metering Infrastructure type of meter (data automatically sent to utility),*
AMR = *Automated Meter Reading type of meter (data read remotely by reader from vehicle or on foot)* *

- AMI
- AMR
- Other
- Don't know or n/a

What was the TYPE of the closest Electric smart meter if "Other" than AMI or AMR?

12. Optional: for the closest Electric smart meter, please enter the FCC ID number, usually found under one of the bar codes on the face or side of the meter; it usually begins with "FCC ID" (this identifies brand and model and transmitter info and is not unique to your particular meter):

FCC ID

13. Please enter the name of your Electric Utility Co. *

- Electric Utility *
- Don't know or n/a

14. Which method of data reporting to the Utility did the Electric smart meter use? *

- Wireless
- PLC-Power Line Carrier/Broadband over Power Line
- Phone line
- Fiber optics
- Don't know or n/a

If wireless, were the transmitters supposedly turned off? *

- Yes
- No
- Don't know or n/a

Page 2 of 4: Your Symptoms, Other Possible Factors

Your Symptoms

KEY TO SYMPTOM INTENSITY AFTER SMART METER EXPOSURE

MILD: mildly uncomfortable
MODERATE: quite uncomfortable; tolerable but barely
SEVERE: extremely uncomfortable, painful or debilitating

Definitions

New: symptoms you never experienced before, not even once in your entire life, that began in correlation with your exposure to smart meters.

Worsened: symptoms experienced before smart meters that *worsened* in correlation with your exposure to smart meters. *Worsened in either intensity and/or frequency.*

Smart meters: used here to signify either one or more smart meters

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Here is a list of Possible Symptoms with 3 text boxes at the end you can use to type in additional symptoms.

FOR EACH OF YOUR SYMPTOMS THAT WERE INITIATED OR WORSENED BY EXPOSURE TO SMART METERS: (the smart meter(s) that most affected you)

SELECT ONE PARAMETER FROM GROUP A, AND ONE FROM GROUP B.

If you make a mistake or change your mind, re-click a box again to remove its checkmark

IMPORTANT: *leave only one checkmark in each Group. Leave the whole symptom row blank for all symptoms NOT initiated or worsened by smart meters.*

If you want to type additional symptoms into the textboxes at the end of the list, please be sure to type the description of each symptom twice, once in the textbox in Group A, and again in the textbox in Group B.

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15. GROUP A: Symptom Intensity AFTER smart meters;
click only one box:
*

	MILD	MODERATE	SEVERE
Agitation	☐	☐	☐
Difficulty concentrating/ attention deficits	☐	☐	☐
Digestive problems	☐	☐	☐
Dizziness	☐	☐	☐
	MILD	**MODERATE**	**SEVERE**
Eye/vision problems	☐	☐	☐
Fatigue	☐	☐	☐
Flu-like symptoms	☐	☐	☐
Headaches	☐	☐	☐
	MILD	**MODERATE**	**SEVERE**
Heart racing, arrhythmia or palpitations	☐	☐	☐

High blood pressure	☐	☐	☐
Insomnia	☐	☐	☐
Involuntary muscle contractions	☐	☐	☐
	MILD	**MODERATE**	**SEVERE**
Low blood pressure	☐	☐	☐
Memory problems	☐	☐	☐
Nosebleeds	☐	☐	☐
Numbness in hands or feet	☐	☐	☐
	MILD	**MODERATE**	**SEVERE**
Pressure in head	☐	☐	☐
Respiratory problems	☐	☐	☐
Ringing, buzzing or tone in ears/tinnitus	☐	☐	☐
Tingling, burning or itching skin	☐	☐	☐
	MILD	**MODERATE**	**SEVERE**
Tingling, burning or itching internally	☐	☐	☐
	☐	☐	☐
	☐	☐	☐
	☐	☐	☐

GROUP B: Symptom Category;
click only one box: *

	New	***Worsened***
Agitation	☐	☐
Difficulty concentrating/ attention deficits	☐	☐
Digestive problems	☐	☐
Dizziness	☐	☐
	New	***Worsened***
Eye/vision problems	☐	☐
Fatigue	☐	☐

Flu-like symptoms	☐	☐
Headaches	☐	☐
	New	***Worsened***
Heart racing, arrhythmia or palpitations	☐	☐
High blood pressure	☐	☐
Insomnia	☐	☐
Involuntary muscle contractions	☐	☐
	New	***Worsened***
Low blood pressure	☐	☐
Memory problems	☐	☐
Nosebleeds	☐	☐
Numbness in hands or feet	☐	☐
	New	***Worsened***
Pressure in head	☐	☐
Respiratory problems	☐	☐
Ringing, buzzing or tone in ears/tinnitus	☐	☐
Tingling, burning or itching skin	☐	☐
	New	***Worsened***
Tingling, burning or itching internally	☐	☐
	☐	☐
	☐	☐
	☐	☐

16. Approximately how long after smart meter installation or the start of exposure (concerning only the smart meter(s) that most affected you) did new symptoms begin and/or previous symptoms worsen? *(Please read the answer that appears in the dropdown menu box after you make your selection, to be sure it is correct).*
*

- ○ Within a few minutes after installation/start of exposure

- Less than one hour after installation/start of exposure
- Later on the day of installation/start of exposure
- The day after installation/start of exposure
- 2 to 3 days after installation/start of exposure
- 4 to 6 days after installation/start of exposure
- 7 to 13 days after installation/start of exposure
- 14 to 28 days after installation/start of exposure
- 1 to 2 months after installation/start of exposure
- 2+ to 3 months after installation/start of exposure
- More than 3 months after installation/start of exposure
- Don't remember, don't know or n/a

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17. Did your new/worsened symptoms (that you correlate with smart meter exposure) begin or worsen BEFORE, or AFTER you first DISCOVERED the presence of a smart meter? (the smart meter(s) that most affected you) *(After you select your answer, please double-check to be sure that the answer that shows in the box is the one you meant to select).* *

- Symptoms months BEFORE discovered smart meter
- Symptoms weeks before
- Symptoms days before
- Symptoms hours before
- Symptoms minutes BEFORE
- Symptoms minutes AFTER discovered smart meter
- Symptoms hours after
- Symptoms days after
- Symptoms weeks after
- Symptoms months after
- Don't remember or n/a

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18. How sure are you that your new/worsened symptoms correlated to smart meter exposure? *

- Unsure
- Fairly sure
- Very sure

19. What is (or was) the approximate distance (through the wall in a straight-line measurement) between the closest smart meter and the location closest to the smart meter where you spent the most time (for example, the head of your bed)? *

- Less than 3 feet
- 4 to 9 feet
- 10 to 19 feet
- 20 to 50 feet
- 50 to 100 feet
- More than 100 feet
- Don't know or n/a

20. Did your symptoms lessen when you went further away from smart meter(s)? *

- Yes in seconds
- Yes in minutes
- Yes in hours
- Yes in days
- Yes in weeks
- Yes in a month or longer
- No
- Don't know or n/a

21. Did your symptoms worsen when you went closer to smart meter(s)? *

- Yes in seconds
- Yes in minutes
- Yes in hours

- Yes in days
- Yes in weeks
- Yes in a month or longer
- No
- Don't know or n/a

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22. How many times did you conduct the inadvertent (or conscious) "experiment" described by the previous two questions? *

- Never
- A few times
- More than a dozen times
- Don't remember or n/a

---

23. How many people in your household were affected by smart meters, including yourself? *

- 1 (only myself)
- 2 (myself + one other)
- 3 (myself + two others)
- 4
- 5
- 6
- More than 6

Please encourage the other person(s) in your household who were affected by smart meters to fill out their own survey, or fill one out for them. Be sure that you and they enter full name and street address when asked for it in the Personal Data section near the end of each survey, so we can link your surveys.

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24. What was the total number of persons living in your household at the time of smart meter exposure, including yourself? *

- 1 (only myself)

- 2
- 3
- 4
- 5
- 6
- More than 6

Other Possible Factors

25. Was there any new electronic device in your home that was first turned on at around the time of smart meter installation/start of exposure, such as a: baby monitor, DECT cordless phone, large screen TV, computer/monitor, internet connection, Wi-Fi device, high-efficiency light bulbs such as compact fluorescents (CFLs) or LEDs, induction-type stove top, generator, welder, large charger or 12 volt DC to 120 volt AC inverter such as for a solar system? *

- Yes
- No
- Don't know or n/a

If "Yes" a new device was turned on at the time, is it possible that your new/unusual or intensified symptoms were associated with this new device and not at all to the smart meter? *

- Yes it is possible
- No
- Don't know or n/a

26. Was there a new antenna/transmitter newly activated near your home around the time of smart meter installation/start of exposure that was not part of the Smart Meter Mesh system (such as a new cell tower or emergency police/fire communication system, either an antenna, or a microwave dish/drum pointed at you at your elevation)? *

- Yes
- No
- Don't know or n/a

If "Yes" a new antenna/transmitter was activated, is it possible your new/unusual or intensified symptoms were associated with this transmitter and not at all to the smart meter? *

- ○ Yes it is possible
- ○ No
- ○ Don't know or n/a

Page 3 of 4: Smart Meter Removed? Moved? Present Sensitivities, Consequences

Smart Meter Removed? Moved?

27. If one or more smart meter(s) were installed on your residence, have all of them been removed? *

- ○ Yes
- ○ No
- ○ n/a

If "Yes" all smart meters were removed, did removal decrease your symptoms? *

- ○ Yes fewer or weaker symptoms
- ○ Yes all symptoms disappeared
- ○ No
- ○ n/a

28. Have you moved? *

- ○ Yes to another residence
- ○ Yes moved out and currently homeless
- ○ Want to move because of smart meters but can't
- ○ No
- ○ n/a

If you moved, did you move primarily because of smart meter(s)? *

- Yes
- No
- n/a

If you need to express anything about locations to live, you can do this in the Comments section at the end of this questionnaire.

Present Sensitivities

29. Are you presently able to use a computer? *

- Yes without symptoms
- Yes with symptoms
- No because of symptoms
- Have not tried

30. Are you presently able to use Wi-Fi? *

- Yes without symptoms
- Yes with symptoms
- No because of symptoms
- Have not tried

31. Are you presently able to use a cell phone? *

- Yes without symptoms
- Yes with symptoms
- No because of symptoms
- Have not tried

32. Do you presently have ES (Electrical Sensitivity)? *

- Yes
- No
- Unsure

Your answers to the following 3 optional questions could be helpful to many other people:

33. What, if anything, has made your symptoms worse (aside from exposure)?

34. What, if anything, has diminished your symptoms (aside from avoidance) - any supplements, treatments, etc?

35. If you had a blood or other test that revealed an abnormal level which seemed to correlate with ES or smart meter exposure, what was that parameter and was it above or below its normal level?

Consequences

Was your exposure to smart meters responsible for initiating your ES? *

- Yes
- No
- n/a, or unsure/don't know

36. If you already had ES before smart meters, did your exposure to smart meters make your ES worse? *

- Yes, slightly worse
- Yes, considerably worse
- Yes, much worse
- No

- ○ n/a, or unsure/don't know

37. Have your symptoms from smart meter(s) significantly limited your capacity to work? *

- ○ Yes
- ○ No
- ○ n/a

38. If you had a job, did your symptoms from smart meter(s) force you to leave it? *

- ○ Yes
- ○ No
- ○ n/a

39. Have your symptoms from smart meter(s) caused you to have a disability that needs (or needed) accommodation? *(**Check all boxes that apply; you can check more than one.**)* *

- ☐ Yes, at home/housing
- ☐ Yes, at work
- ☐ Yes, in public buildings
- ☐ No
- ☐ n/a

40. Have you been diagnosed by a M.D. to have any of the following conditions, and if Yes, diagnosed when? [SM = your exposure to Smart Meter(s)] *

	No or n/a	Yes, before SM	Yes, after SM
Cardiac arrhythmia	○	○	○
Other heart condition	○	○	○
MCS	○	○	○
CFIDS	○	○	○

Fibromyalgia	○	○	○
Lupus	○	○	○
MS	○	○	○
Other autoimmune	○	○	○

Were any of these *diagnosed* conditions worsened by SM or initiated by SM?
[SM = your exposure to Smart Meter(s)] *

	No or n/a	Yes, Worsened by SM	Yes, Initiated by SM
Cardiac arrhythmia	○	○	○
Other heart condition	○	○	○
MCS	○	○	○
CFIDS	○	○	○
Fibromyalgia	○	○	○
Lupus	○	○	○
MS	○	○	○
Other autoimmune	○	○	○

41. If you clicked "Other autoimmune condition diagnosed by a M.D." in the question above, please type the name of the condition here (and if there is *more* than this one other diagnosed autoimmune condition, please list it/them in the comments section at the end of this survey, along with if diagnosed before or after SM, and if worsened or initiated by SM):

n/a by default, or enter "Other autoimmune condition" here

Page 4 of 4: Personal Data, Optional Comments, Permissions

Personal Data

Your personally identifiable data will be kept confidential. The manner in which they may be used depends on the level of permission you give in your answers to the last two questions on this page (in Permissions section)



This survey is being conducted via SurveyGizmo. SurveyGizmo has HIPAA personal information protection certification. HIPPA is a US federal law that establishes standards for the privacy and security of health information.



SurveyGizmo also has Safe Harbor certification. Safe Harbor is program for compliance with European Union privacy laws.

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First Name *

Last Name

Street Address

City *

County if a USA address (note, this is not CountRy)

State if a USA address (pease review your selection to be sure it is correct).
If not a USA address, enter your equivalent to State in the "(Provence)" textbox, also enter your equivalent of Zip code and enter your Country, and then ignore the reminder "You skipped this question" that pops up over County and State when you click "Submit Survey". Just scroll down to the bottom of the page again and click "Submit Survey" a second time.

(Province)

Zip *

Country *

Email *If you enter an email we will be able to send you our Thank You email, which contains a PDF of your completed survey, a PDF of a blank survey to give to people who cannot use a computer, an optional affidavit, and a link to access survey results.*

Phone Number

42. Sex *

- Female
- Male

43. Please Select Your Age Range *

- under 18
- 18 to 29
- 30 to 44
- 45 to 59
- 60+

44. Highest degree achieved: *(Please* review your *answer after you select it to be sure it is correct).* *

- n/a
- GED
- High School
- BS or BA
- MS or MA
- Ph.D.
- M.D.
- RN
- DDS
- Other medical

45. Profession/Occupation:

Comments Section (optional)

46. You can enter additional heath-related comments in the space provided below, including if you wish, a short summary of the impacts smart meters have had on your life. (Your entry is limited to 300 words).

Permissions

In order to make use of the answers you supplied, we need your permission for:

47. Anonymous Use: Do you give us permission to incorporate your answers and comments given in this questionnaire: into a research database to be used in our analysis and report which may eventually be presented, as anonymous data only, in legal proceedings, at conferences and/or published, including permission for us to quote some of your comments anonymously?

[Your personally identifiable information - last name, street address, email and phone number - will remain in a secure SurveyGizmo computer database. Neither SurveyGizmo nor the author of this survey will share any of your personally identifiable information with anyone. The author will use your phone number to contact you only if there is a problem with your survey.] *

- Yes
- No

Did you really intend to answer "No" to the question above about anonymous permission? If you let a "No" answer stand, then when you press "Submit Survey" all of the data you have entered in this questionnaire will be permanently erased, because you have not given us permission to use it.

48. Limited Confidential Disclosure: Anonymous data carry very little weight in regulatory or legal proceedings. Therefore in order for your data to be convincing in such proceedings, it must include at least your full name and street address. If you answered "Yes" to the previous question concerning permission to use anonymously, do you give us further permission to use all (except

email and phone) of your answers and comments given in this questionnaire, including full name and street address, **subject to confidentiality restrictions (i.e., disclosable only to parties to proceedings who are bound by sworn confidentiality obligations not to disclose any personal information)**, in regulatory/legal proceedings concerning smart meters, including in the pending investigation of smart meters by the Maine Public Utilities Commission? *(Your email and phone will not be revealed under any conditions. If you did not supply your last name, street address, email and phone number where requested in previous questions, please reconsider doing so.)*

[Aside from this limited and confidential disclosure, your personally identifiable information (last name, street address, email and phone number) will remain in a secure SurveyGizmo computer database, accessible only to the author of this survey via a secure password. All surveys and data reside on SurveyGizmo's servers, which use Advanced Encryption Standard (AES) 256 bit encryption, the method used by banks and by the US National Security Agency for classified top secret information. There are multiple layers of proactive security, and data are never exported, sold, rented or used in any way by SurveyGizmo.]

- ○ Yes
- ○ No

Thank you for answering Yes to the last question, giving us permission for limited confidential disclosure of your full name and full address along with your survey data. Please scroll up to the top of this page and check to make sure that you did enter these in the blanks provided at the beginning of the Personal Data section (they are not required responses, and so you may have omitted them). Without full name and address, your survey responses would be less useful in regulatory or legal proceedings. THANK YOU!

Survey ID *

[survey("response id")]

Thank You!

Thank you very much for completing your questionnaire!

LOOK in your mailbox! We have just sent you an important email.

Attached to this email is a PDF file of your completed survey containing your answers for your records, and a link to a summary report of all surveys received. **Most importantly, it includes information on how to mail us an optional AFFIDAVIT** together with a hard copy of your completed survey. The affidavit will greatly magnify the influence of your survey data in legal proceedings. Click here to download the affidavit form with instructions, or just download it from the email we have sent you.

This email also contains a link to forward to others interested in taking this survey, and a PDF of a blank survey. You can print a hard copy of the blank survey to give or mail to people who have been affected by smart meters and cannot use a computer.



For assistance with using ECFS, please contact the ECFS Help Desk at 202-418-0193 or via email at ECFSHelp@fcc.gov.

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