Environmental Health Trust
https://ehtrust.org/educate-yourself/health-risks-posed-by-smartmeters/

What are Smartmeters?

Smartmeters are the new utility consumption measurement devices for electricity, water, and gas that are being installed across the nation, at residences and other buildings. There would be a separate meter for each type of utility and they are installed by the companies and governments that provide the utilities.

"There is no doubt that smart and digital meters create pulsed RF emissions and these emissions, from the smart meters' antennas and the RF created by the SMPS, both enter the house's electric system. The result is that the entire house is transformed into a radiating RF antenna."

"Any meter with a switch mode power supply will create RF frequencies in the Kilohertz range that enter the electrical wiring system of the house. Smart meters and digital meters inject significant levels of RF onto the home's electrical distribution system."

"Most people are unaware that their meter has been switched or is in the process of being switched from an analogue meter to a digital "smart" meter. If your home or building already had a meter, it was probably an analogue meter (used for decades), but the the replacement meter is likely a digital meter—a "smart" meter. – Engineers Report to Supreme Court of Pennslyvania

Read Dr. David Carpenter, Dr. Hardell, Dr. Havas and Dr. Milham and Dr. Herbert's letter on smartmeter health impacts to North Carolina PDF of Letter

On October 21, 2020 Dr. Davis Carpenter presented to the WSSC Water Authority on smartmeters

- See PDF of Dr. Carpenter's slides here
- See his comments to WSSC regarding a report by industry connected scientist.

Even Itron, a manufacturer of Smart Meters warns shareholders that, "We may face adverse publicity, consumer or political opposition, or liability associated with our products…We may be subject to claims that there are adverse health effects from the radio frequencies utilized in connection with our products. If these claims prevail, our customers could suspend implementation or purchase substitute products, which could cause a loss of sales" Itron Inc, SEC Form 10 K 2017

What US States have opt outs for Smartmeters?

The www.emfsafetynetwork.org has a partial list of California groups, lawmakers, counties and cities who have called for a moratorium, the right for consumers to opt out, adopted an ordinance banning meters, requested more research on health and safety impacts, or are opposing Smart Meters: Those listed in red banned the meters. The Utility Reform Network, CA State Senator Dean Florez, CA State Assembly members Jared Huffman and Bill Monning, the County Board of Supervisors of Humboldt, Lake. Marin, Mendocino, Monterey , San Luis

Obispo, Santa Cruz, San Francisco, Santa Barbara, Sonoma, Tehama , Ventura, and the cities of Arcata, Belvedere, Berkeley, Blue Lake, Bolinas, Buelton, Calabasas, Camp Meeker, Capitola, Clearlake, Cotati, Fairfax, Fort Bragg, Goleta, Grover Beach, Lakeport, Marina, Mill Valley, Monte Sereno, Monterey, Morro Bay, Mt. Shasta, Novato, Ojai,Pacific Grove, Palo Alto, Piedmont, Richmond,Rio Dell, Ross, San Anselmo, San Luis Obispo ,San Rafael, Santa Barbara, Santa Cruz, Sausalito, Scotts Valley, Seaside, Sebastopol, Simi Valley, Solvang, Thousand Oaks, Watsonville, Willits, and the Big Valley Band of Pomo Indians, the Peace and Freedom Party, the Marin Association of Realtors, the Sonoma County Republican Central Committee, the SF Sierra Club, the Monterrey Green Party, the Alameda Greens, and the EMF Safety Network. In addition cities in the State of Maine and British Columbia Canada have passed resolutions calling for a moratorium on Smart Meters.

More information can be found at http://emfsafetynetwork.org/smart-meters/

Please also see the The National Conference of State Legislatures webpage that has a map of the US with various policies on utility meters at http://www.ncsl.org/research/energy/smart-meter-opt-out-policies.aspx

What type of meter do you have?

There are different types of smartmeters; some are called AMI, AMR and PLC. To learn more about the different types of meters, we recommend Dr. Ronald Powell's paper "Ranking Electricity Meters for Risk to Health, Privacy, and Cyber Security."

League of United Latin American Citizens Resolution

RESOLUTION FOR A MORATORIUM ON THE INSTALLATION OF 'SMART' METERS AND NO COST OPT-OUT

- "WHEREAS, since its inception on February 17, 1929 in Corpus Christi, Texas, LULAC, the League of United Latin American Citizens, the largest, oldest and most successful Hispanic civil rights and service organization in the United States, has championed the cause of Hispanic Americans in education, employment, economic development and civil rights…"
- "BE IT FURTHER RESOLVED that we support a Moratorium on the installation of RF/'smart' meters until such time that we determine that all safety, health, and privacy concerns have been resolved to the satisfaction of this organization."

READ IT ALL on LULAC

Health experts urged states to adopt a free opt-out for Duke Energy customers

In 2017, Dr. David Carpenter MD, Dr. Magda Havas, and Dr. Lennart Hardell wrote letters to each of the utility commissions that oversee Duke Energy

- Florida Public Service Commission
- Indiana Utility Regulatory Commission
- Kentucky Public Service Commission
- North Carolina Utilities Commission
- Public Utilities Commission of Ohio
- Public Service Commission of South Carolina

We, the undersigned, are scientists and health professionals who together have co-authored many peer-reviewed studies on the health effects of radiofrequency radiation (RFR). We are aware that the Public Utilities Commission of Ohio is considering a proposed smart meter opt-out fee from Duke Energy. Smart meters, along with other wireless devices, have created significant public health problems caused by the radiofrequency radiation (RFR) they produce, and awareness and reported problems continue to grow. With Duke Energy being America's largest utility provider and, consequently, having the largest potential smart meter implementation reach, it is imperative that the [] Commission [...] be fully aware of the harm that RFR can cause and allow utility customers to opt out of smart meter installation with no penalty....

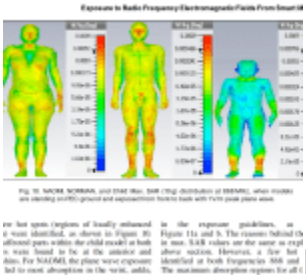
Some Facts About Smartmeters

Smart Meters emit radio-frequency radiation (RFR).

Most smartmeter are designed to emit radio-frequency radiation (RFR). This is a concern because RFR is a biologically-active electromagnetic exposure that is absorbed into our bodies. Many smartmeter systems generate RFR to wirelessly communicate with other smartmeters and to the utility provider and each of these wireless communication networks increase the overall density of manmade pulsed RFR radiation outdoors and indoors, throughout a neighborhood.

The Santa Cruz, Calif., County Board of Supervisors has declared "smart" electric and water meters to be "health hazards, safety and consumer fraud risks." The Santa Cruz, Calif., County Board of Supervisors also stated PG&E (Pacific Gas & Electric) is subjecting residents to "privacy, security, health, accuracy and consumer fraud risks of the unproven Smart Meter technology." and that because "There is a current and immediate threat to public peace, health, or safety", a moratorium on further installations must be imposed in order to preserve and protect said public interests.

The radiation generated by smartmeters is the same type as generated by your cell phone- radiofrequency radiation.
Peer reviewed science has found increased cancer, immune system damage, and headaches after exposures to radiofrequency radiation. Dr. David Carpenter's letter "Correcting the Gross Misinformation" **addresses** the biological health effects of smartmeters.
In the video below Daniel Hirsch, the retired director of the Program on Environmental and Nuclear Policy at the University of California, Santa Cruz, and president (unpaid) of the Committee to Bridge the Gap, a nuclear policy NGO.explains his analysis of misleading reports on smartmeter radiation by EPRI, "When you correct for these two facts, the whole body and cumulative, rather than the cell phone being 100 times more exposure than a smartmeter, the smartmeter turns out to be roughly 100 times more exposure than a cell phones."
Smartmeter radiation penetrates deeper into children's bodies.



Research consistently finds that radiofrequency radiation penetrates deeper into children's bodies and brains and the American Academy of Pediatrics considers children more vulnerable to radiofrequency radiation-whatever the source. Research that has looked specifically at smartmeters has found that the radiation is absorbed at a faster rate and more intensely into their bodies. Read this 2018 published paper (Qureshi 2018) which concludes that the highest observed whole body specific energy absorption rate value was in the child model when radiation from a smartmeter was simulated.

Bees, birds and insects are exposed to higher density of RFR.
The pulsed RFR emitted by smartmeters and other wireless telecommunications poses risks to pollinators and wildlife. Published research has found negative impacts to bees, plants, andwildlife. For example, a review of 113 studies from original peer-reviewed publications found RF-EMF had a significant effect on birds, insects, other vertebrates, other organisms and plants in 70% of the studies. Development and reproduction of birds and insects are the most strongly affected endpoints. Read more.

Many communitites have "Opt outs" and some are FREE

Click here for a list of Smart Meter Opt-Out Information – August 10, 2020 (compiled by The Coalition to Stop Smart Meters BC – www.stopsmartmetersbc.com – by Sherry R)

Most smartmeters emit very strong pulses of RFR twenty four hours a day.
Contrary to claims made by utility providers that the exposure is "low," many smartmeters continuously emit RFR in millisecond blasts. These short bursts of radiation can be very powerful.
Wireless smart meters typically produce very short high levels of pulsed RF/microwaves. They emit these millisecond-long RF bursts on average 9,600 times a day **with a maximum of 190,000 daily transmissions** and a peak level emission two and a half times higher than the stated safety signal, as the California utility Pacific Gas & Electric recognized before that State's Public Utilities Commission when directly asked. To be clear- smartmeters can average 1900 transmissions in a 24 hour period.
[pdf-embedder url="https://ehtrust.org/wp-content/uploads/smartmeters-transmit-9600-a-day-image-.pdf" title="smartmeters transmit 9600 a day image"]

Please see "Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters" by Sage Associates. This research uses computer modeling that has found potential violations of current FCC public safety standards for smart meters and/or collector meters in the manner installed and operated in California are predicted in this Report. Download this entire report as a PDF file
Even battery powered "smart" AMI water meters radiate numerous times an hour.
The manual of the Neptune Smart Water meter says, "The E-CODER)R900i meets FCC Regulations Part 15.247 allowing higher output power and greater range. It uses frequency hopping spread spectrum technology to avoid RF interference and enhance security. The transmitted data is updated at 15 minute intervals and transmits a mobile message that includes the meter reading data and the unique ECODER)900iID every 14 to 20 seconds.
The E-CODER)R900i also transmits a high power fixed network message every seven and one half minutes …If connected to a LoRa network , the E-CODER)R900i can transmit a high power fixed network message every three hours on an interleaved basis."



Figure 1 – E-CODER®)R900i™

"The E-CODER)R900i meets FCC Regulations Part 15.247 allowing higher output power and greater range. It uses frequency hopping spread spectrum technology to avoid RF interference and enhance security. The transmitted data is updated at 15 minute intervals and **transmits a mobile message that includes the meter reading data and the unique ECODER)900iID every 14 to 20 seconds.** The E-CODER)R900i **also transmits a high power fixed network message every seven and one half minutes** ...If connected to a LoRa network , the E-CODER)R900i can transmit a high power fixed network message every three hours on an interleaved basis.

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The [Itron water meter also](#) says transmissions are numerous times a day. In fact the manual also says that people should be 20 cm from the meter. 20 cm is about 8 inches.

[Rea](#)



Figure 1 – E-CODER®)R900i™

"RF Exposure Information
This equipment complies with the FCC RF radiation requirements for uncontrolled environments. To maintain compliance with these requirements the antenna and any radiating elements should be installed to ensure that **a minimum separation distance of 20 cm** is maintained from the general population."
-Neptune Smart AMI Water Meter R900

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[d it Here](#)

"RF Exposure Information

This equipment complies with the FCC RF radiation requirements for uncontrolled environments. To maintain compliance with these requirements the antenna and any radiating elements should be installed to ensure that a minimum separation distance of 20 cm is maintained from the general population."

Smartmeter systems intentionally create a "mesh" wireless communications network which is RFR emissions.
Many smartmeters work differently than cell phones. Cell phones communicate by continuous two-way exchange of RFR emissions between the phone and a cell tower, whereas, smartmeters can communicate with each other in a wireless "mesh network." Every meter in the mesh network wirelessly "chats" by RFR emissions connecting it to every other meter within its mesh network (the size of the network can be all meters within one or two miles).

The data wirelessly riding on your meter's RFR emissions is collected by the utility provider's centralized hub antennas—these may be mounted on utility poles called Data Collector Units or be specially-programmed collector meters or other transceivers spaced throughout a community. Collector meters usually have more powerful emissions because they are communicating with the other meters in the network. Read more about mesh networks.

Smartmeter radiation is neither "low" nor "safe".
Utility companies claim that the RFR emitted by wireless smartmeters and their networks meet government FCC limits. However, 20-year-old FCC limits (based on 30-year-old science) are not protective of human health and are hundreds of thousands of times too high to protect humans and wildlife from biological effects.

Peer reviewed published studies show the adverse biological effects of pulsed electromagnetic radiation, such as RFR, on the body at emissions levels far below FCC limits. You can find many of these studies at the BioInitiative Report, JustProveIt.net, and Environmental Health Trust.

"When it comes to non-thermal effects of RF, which is the most relevant effect for public concerns, FCC guidelines are irrelevant and can not be used for any claims of SmartMeter safety unless we are addressing heat damage."—Dr. De Kun Li, a Kaiser research scientist who has published research on electromagnetic radiation and provided expert testimony on health concerns related to smartmeters and the inadequacy of FCC limits here.
Communities oppose smartmeters because of fires and other hazards.

"Due to meter design and function, these digital meters can malfunction in several ways. Electric digital meters can allow surges and overvoltage to flow into buildings which can burn wiring and destroy appliances and electronics. They can interfere with arc and ground fault circuit interrupters. Meters have exploded and have caused fires, and they have likely contributed to the severity of other fires. Some of the fires have resulted in the deaths of people and their pets. Water and gas AMI/AMR/digital meters pose additional hazards," an excerpt from the 50-page paper "Overview: Fire and Electrical Hazards from 'Smart', Wireless, PLC, and Digital Utility Meters" now available free for downloading providing information from experts on utility meters used in the U.S. and Canada.
The report "Analysis: Smart Meter and Smart Grid Problems – Legislative Proposal" is a 173-page report, released in 2012 by health and environmental advocate Nina Beety, has extensive referenced information on the many problems and risks of the Smart Meter program known at that time, with information from state, national, and international resources.
All smartmeters state people should be at least at 20 cm (8 inch) distance so they are not exposed to radiation in excess of FCC limits.
Smartmeters are radiation tested for their compliance with FCC limits with *20 cm* between the device antenna and body phantom. This means that if you are *closer* than 20 cm you could be exposed to radiation *higher than government limits*. Most people are unaware of these warnings. Note: these FCC limits are non protective, so even if you follow this warning, you are not protected from all harmful effects.

- "Warning: To satisfy FCC RF exposure requirements for transmitting devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended." –FLEXGE100 Utility Meter Electric Smartmeter
- "RF Radiation Safety Guidelines: The meter should be installed in a location where there will be a separation greater than 20 cm (8 inches) from locations occupied by humans." –I2103G WIRELESS UTILITY METER User Manual Users Manual Itron Electric Utility Smartmeter
- Read the Iowa Legal Brief section on "IPL has Not Met its Burden to Show that the Transmitting Module in the Sensus Stratus Meter and Other Meters are FCC Compliant due to the 20 cm Rule that goes into detail on how companies are aware but are not protecting customers.

Smartmeters can increase the "dirty" electricity on the electrical and metal plumbing systems throughout your home.

Digital meters operate by a built-in switched mode power supply, which generates what is commonly known as “dirty electricity” and referred to by electricians and electrical engineers as “voltage transients,” “voltage harmonics,” “line noise,” and “power quality issues.” This is a concern because dirty electricity is also a biologically-active, penetrating, electromagnetic physical agent. This dirty electricity then travels throughout your home via the electrical wiring and metal pipes.
Please watch electrical engineer Bill Bathgate testify before Michigan House Energy Committee on 2/13/18. In this video Bathgate testifies on these transients and also that he has run tests that show that both the smart electric meter and the smart meter with radio turned off are wildly inaccurate but the traditional analog meter is accurate and gives repeatable results.

People are reporting symptoms after smartmeters are installed at their residences.
Reported symptoms include sleep disturbances, rashes, hyperactivity, changes in children’s behavior, high blood pressure, endocrine problems, thyroid problems, facial flushing, nausea, flu-like symptoms, body pain, leg cramps, cardiac symptoms, heart palpitations, heart arrhythmias, dizziness, fatigue, physical weakness, difficulty concentrating, memory loss, learning problems, ringing in the ears, headaches, and more. People report these symptoms immediately or shortly after smartmeters are installed and activated in their communities. Learn more about electrical sensitivity and microwave sickness.
People are suing for the right to remove the smartmeter and they are winning!
For example, the Iowa Utility Board made their final ruling and it appears that people will be able to opt out and not have to pay a fee for doing this.

- Iowa Final Ruling on Smartmeter Opt Out Against Interstate Power and Light 2018
- Iowa Public Version of Post Hearing Brief Lipman Matara

How do I get a smartmeter off my house?
24 States have opt outs for smartmeters.
First, take a glance at your meter and see if you have a smartmeter or an analogue meter. Some people take a photo of the meter from a distance away from the meter so that instead they can look more closely at the photo. If your meter does not look like a digital meter, that is not a guarantee that it is not smart; contact your utility provider and ask (experienced citizens recommend that you do not explain why you are asking, simply ask *and* ask for the model name/number of your meter. If you do not have a smartmeter, find out if smartmeters are coming to your neighborhood by contacting a local smartmeter advocacy group or your

utility provider. If you are not sure whether or not your meter is smart, if you have its model name/number, usually a local smartmeter advocacy group can tell you.

If you do have a smartmeter and you are in the United States, you can contact your utility provider and tell them you want your meter replaced with an analogue meter. Also send a letter via postal mail to your utility provider. Sometimes the provider's representative who answers the phone is not aware of this issue. We recommend locating the smartmeter advocacy group in your state working on this issue for full information on what you can do in your state and how you can best address this issue. To find the local smartmeter advocacy group in your area go to the EMF Safety Network webpage on global smartmeter groups or StopSmartmeters local group directory.

Many localities have no fees for opting out.

For example, Indiana (Duke Energy) makes it free IF you sign up for the Read-Your-Own Meter Program. In California, opt out fees are no longer collected after 3 years. They are "sunsetted." New Mexico, Oregon, Tennessee, Vermont, Los Angeles, California, New York/Central Hudson have no fee. North Carolina has no fee if for health reasons. Texas offers low-income fee option. Read more at Stop Smartmeters BC.

The need for consumer choice.

People should have a right to choose whether or not they want a smartmeter at their home. Yet in many communities residents are told they have no choice and cannot refuse a meter. Or if residents are given an "opt out" they are required to pay monthly fees (in addition to the utility consumption charges) to keep the analogue meter. If you do not have any type of meter at your home (for example, some residents pay a flat fee for water) or have other questions about your options, you can find the local smartmeter advocacy group in your area at the EMF Safety Network webpage on global smartmeter groups or StopSmartmeters local group directory.

People are taking action in the US and worldwide so that citizens have consumer choice in regards to their utility meters, and there are groups formed in every area. Learn more at the resources below this post.

Communities and individuals have been successful in halting the smartmeter rollout in their area and getting analogue meters.

After community awareness was raised, some cities have enacted moratoriums on smartmeters. For example, the Santa Cruz Health Department issued a report and the city has a Moratorium on smartmeters.

Some individuals were initially told they must pay to "opt out" but were successful in getting these opt-out fees dropped after litigation. For example, you can read about Josh Hart's successful legal battle here.

EXPERT TESTIMONY ON SMARTMETERS

Iowa Final Ruling on Smartmeter Opt Out Against Interstate Power and Light 2018
Iowa Public Version of Post Hearing Brief Lipman Matara
Dr. David Carpenter's letter "Correcting the Gross Misinformation" PDF of Dr. Carpenter' Letter on smartmeters
Testimony on Smartmeters for Michigan Public Service Commission by Dr. David Carpenter May 22 2015 '"While smart meters are too new for there to be human health studies 10 specifically on exposure from smart meters, there is a strong body of evidence 11 that demonstrates a variety of adverse human health effects, including cancer 12 and effects on brain and behavior, coming from exposure to radiofrequency 13 radiation like that generated by wireless smart meters."
Dr. David Carpenter December 2011 Testimony to Michigan on Smartmeters
"Assessment of Radiofrequency Microwave Radiation Emissions from Smart Meters" by Sage Associates, Santa Barbara, CA, USA
Dr. De Kun Li Testimony on Smartmeters and the lack of public health protection from FCC limits

- Dr. De-Kun Li Testimonial Letter to FCC regarding electromagnetic radiation. https://ecfsapi.fcc.gov/file/7022311506.pdf
- Dr. De-Kun Li Testimony FCC– Docket2011-00262 https://ecfsapi.fcc.gov/file/7520940945.pdf

Dirty Electricity and Electrical Hypersensitivity: Five Case Studies by Magda Havas1 and David Stetzer World Health Organization Workshop on Electrical Hypersensitivity, 25-26 October, 2004
BIOLOGICAL AND HEALTH EFFECTS OF MICROWAVE RADIO FREQUENCY TRANSMISSIONS A REVIEW OF THE RESEARCH LITERATURE A REPORT TO THE STAFF AND DIRECTORS OF THE EUGENE WATER AND ELECTRIC BOARD June 4, 2013 lead author Dr. Paul Dart, June 4, 2013
Dr. Martin Pall Testimony: Health Effects of Wireless Massachusetts Statehouse 2017" June, 20, 2017, Testimony given during a hearing on Massachusetts Senate Bill 1864: No Fee Opt Out for Smart Meters.
Dr. Conrad- Maine Public utilities Commission Testimony on Smart Meters. 2013.
Dr. Andrew Marino Expert Testimony August 8, 2016
Magda Havas, Trent School of the Environment Testimony to Iowa Utilities Board September 21, 2018
Health Department Resources on Smartmeters

Santa Cruz Health Department Moratorium on Smartmeters.

Published Research of Note

"Self-reporting of symptom development from exposure to radiofrequency fields of wireless smart meters in victoria, australia: a case series."

- "Review of some key studies, both recent and old (1971), reveals that the participants' symptoms were the same as those reported by people exposed to radiofrequency fields emitted by devices other than smart meters. Interestingly, the vast majority of Victorian cases did not state that they had been sufferers of electromagnetic hypersensitivity syndrome (EHS) prior to exposure to the wireless meters, which points to the possibility that smart meters may have unique characteristics that lower people's threshold for symptom development."

"It is a well documented 92 case series that is scientifically valid. It clearly demonstrates adverse health effects in the human population from smart meter emissions. The symptoms reported in this case series closely correlate not only with the clinical findings of environmental physicians, but also with the scientific literature. Many of the symptoms reported including fatigue, headaches, heart palpitations, dizziness and other symptoms have been shown to be triggered by electromagnetic field exposure under double blind, placebo controlled conditions. Symptoms in this case series also correlate with the Austrian Medical Association's Guidelines for the Diagnosis and Treatment of EMF Related Health Problems." American Academy of Environmental Medicine Letter

DR. RONALD POWELL'S RESOURCES ON SMARTMETERS

Ranking Electricity Meters for Risk to Health, Privacy, and Cyber Security
Symptoms after Exposure to Smart Meter Radiation
Symptoms Resulting from Exposure to Radiofrequency/Microwave Radiation from Smart Meters
The Health Argument for Replacing Wireless Smart Meters with a Safe Metering Technology in Maryland
A Ratepayer's View of Maryland's Bill of Rights for the Maryland Electric Power Companies that
Implement Wireless Metering Systems
You May Want to Ask Your Electric Power Company about Wireless Smart Meters
FCC Maximum Permissible Exposure Limits for Electromagnetic Radiation, as Applicable to Smart Meters