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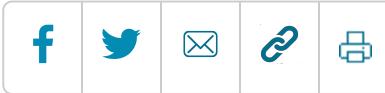
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## Why Smart Meters Are Good for Utility Companies, Bad for Consumers

*Proponents of smart meters say the devices promote energy conservation by providing detailed feedback to consumers about their habits, but critics say the technology can be harmful to health and it poses real privacy concerns.*

By **Suzanne Burdick, Ph.D.**

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**Smart meters** — or “advanced metering infrastructure (AMI) installations” — are wireless devices that use **radiofrequency (RF)**

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radiation to transmit information about how much water, gas and electricity consumers use to utility companies.

The U.S. rolled out its first smart meters in 2009 when Congress introduced the [Smart Grid Investment Grant \(SGIG\)](#) program as part of the [American Recovery and Reinvestment Act](#).

According to the SGIG website, the program “aimed to accelerate the modernization of the nation’s electric transmission and distribution systems.”

In 2015, smart meters got a big push from the Obama administration, which funded the rollout of about [18 million smart meters](#).

In 2021, U.S. electric utility companies installed more than [111 million smart meters](#) — roughly 88% of the meters were installed in personal residences.

Promoters of the technology argue the meters [promote energy conservation](#) because they measure and [record electricity usage frequently](#) and provide the data to the utility company and consumer at least once a day, allowing the consumer to get detailed feedback on their energy habits.

However, critics say the technology can be harmful to health, especially for those who experience [electromagnetic sensitivity](#) — and [especially for children](#).

They also cite privacy and personal liberty concerns about how utility companies use the data collected by smart meters — and who they share that data with.

**‘People unwittingly sleep ... on the other side of the wall and get very, very ill’**

“Smart meters are a bad idea because they use two-way radiofrequency microwave radiation to send your usage data for electric, gas, water and solar energy,” said Cecelia Doucette, a technology safety educator and the director of [Massachusetts for Safe Technology](#).

Doucette told [The Defender](#) that doctors at the [2021 EMF Medical Conference](#) — where healthcare practitioners earned continuing education units on the prevention, diagnosis and treatment of illness associated with [electromagnetic fields \(EMF\)](#) — underscored that “smart meters, close-range cell towers and 5G small cells are primary triggers of [microwave sickness](#).”

“These meters are installed directly on our homes and elsewhere with no informed consent, and people unwittingly sleep or spend time on the other side of the wall and get very, very ill,” she added.

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Carcinogenic  
to Humans’**

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[Richard Conrad, Ph.D.](#), principal of the consulting service [Conrad BioLogic](#), in 2013 published a study based on a survey of 210 individuals who considered themselves affected by smart meters.

The results showed “a full 97.6% of the 210 respondents were either very sure or fairly sure that their smart meter [caused new or worsened symptoms](#).”

About 45% of the respondents believed the smart meters caused them to [become electrically sensitive](#).

In 2018, the [U.S. National Toxicology Program](#) (NTP) — part of the National Institutes of Health — determined from a \$30 million study that there was “clear evidence” that electromagnetic radiation (EMR) is associated with cancer and DNA damage.

Since then, more studies have linked EMR — including the RF radiation portion of the EMR spectrum — to many [adverse health effects](#) including tinnitus, fatigue, headaches, dizziness and disorientation and nausea and vomiting.

### Children especially at risk

In 2021, researchers — including [Beverly Rubik, Ph.D.](#), founder and director of the [Institute for Frontier Science](#) — reviewed more than 250 peer-reviewed research reports on the detrimental bioeffects of [wireless communication radiation](#) and concluded RF radiation may:

- cause morphologic changes in erythrocytes including echinocyte and rouleaux formation that can contribute to hypercoagulation;
- impair microcirculation and reduce erythrocyte and hemoglobin levels exacerbating hypoxia;
- amplify immune system dysfunction, including immunosuppression, autoimmunity, and hyperinflammation;
- increase cellular oxidative stress and the production of free radicals resulting in vascular injury and organ damage;
- increase intracellular Ca<sup>2+</sup> essential for viral entry, replication, and release, in addition to promoting pro-inflammatory pathways; and
- worsen heart arrhythmias and cardiac disorders.

The World Health Organization’s [International Agency for Research on Cancer](#) classifies everything on the RF-EMF spectrum as a 2B “[possible human](#)” carcinogen.

Children may be especially at risk, according to the [American Academy of Pediatrics](#) (AAP).




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The authors of a 2005 article published in the AAP's journal, *Pediatrics*, wrote:

“Concerns about the potential [vulnerability of children to RF fields](#) have been raised because of the potentially greater susceptibility of their developing nervous systems; in addition, their brain tissue is more conductive, RF penetration is greater relative to head size, and they will have a longer lifetime of exposure than adults.”

In their [executive summary](#) on wireless technology and public health, [Physicians for Safe Technology](#) state:

“The [abundance](#) of peer-reviewed science showing harm coupled with obsolete radiofrequency safety guidelines that fail to address long-term health effects and non-thermal [biological effects](#) indicate that a [precautionary approach](#) is essential to reduce potential harm to the public and the environment.”

Even after NTP researchers in 2018 alerted the Federal Communications Commission (FCC) to its findings, the FCC went ahead and [granted approval for 5G wireless technology](#).

The FCC's actions came as no surprise to Harvard University's [Safra Center for Ethics](#) which, in 2015, published a 56-page investigative report titled, “[Captured Agency](#): How the Federal Communications Commission Is Dominated by the Industries It Presumably Regulates.”

“A detailed look at FCC actions — and non-actions — shows that over the years the FCC has granted the wireless industry pretty much what it has wanted,” summarized the report's author, Norm Alster.

“The wireless industry will deploy delay tactics by saying we need more than one study to prove harm,” Doucette said, “and right on the heels of our \$30M study, Italy's [Ramazzini Institute](#) published another large study that corroborated the NTP findings.”

### **Engineer: ‘They’re all bad’**

[Bill Bathgate](#), an engineer and certified building biology environmental consultant, told *The Defender*, “When they first started rolling these out, I had the opportunity to get a hold of one and physically take it apart.”

Over time, Bathgate — who is also a certified building biology electromagnetic radiation specialist — took apart smart meters made by four of the five top manufacturers.

There are three predominant design technologies used in most smart meters: [mesh network](#), [hub and spoke network](#), and [powerline communications](#) (PLC). “They’re all bad,” Bathgate said.

"I can attest that they meet the FCC specs [technical specification requirements] for the most part, but the specs are 'very wide,'" he said. "There's a lot of openness relative to specification, so you can't expect the FCC specification to protect health."

Smart meters expose people to continuous RF radiation by emitting a "sharp" electromagnetic pulse, meaning that it is pulsing "very frequently — not anywhere near what they [the utility companies] say," Bathgate said.

Utilities will say the smart meters transmit the data only three or four times a day — meaning it only sends the electrical usage data three or four times a day to a transfer station — but "it's constantly pulsing all day" throughout the home, he said.

"Every three to seven seconds, it's pulsing."

A California investigation for the [utility company PG&E](#) determined smart meters could pulse up to 192,000 times a day, Bathgate noted.

Additionally, he said, most smart meters don't have a surge suppression mechanism and thus [pose a fire risk](#). "The old analog meters had that, but none of the new meters have that," he said.

In March 2015, a dump truck hit a PG&E power pole in Stockton, California, causing about 5,000 meters that had been placed on residents' homes to instantly [explode due to overvoltage](#).

"The top lines are considered our freeways," PG&E spokeswoman Brandi Ehlers told CBS News. "The bottom lines are our distribution lines taking power directly to homes," PG&E spokeswoman Brandi Ehlers told CBS News.

"So when the two collide, they're at different voltages and the higher voltage wins out, causing an overload," she added.

According to [EMF Safety Network](#), there have been at least [10 incidences in the U.S.](#) similar in nature to the Stockton incident — and others in Canada, Australia and New Zealand.

### **The rates go up ... but they never go down**

Bathgate said he also dislikes smart meters because, in his opinion, the technology was designed to save the electric utility money while being advertised as something that will save the [consumer's energy expenses](#).

"If an investor-owned utility decides they're going to recommend for the [state utility] commission to approve the deployment of smart meters, there's a cost associated with that" — which consumers pay in the form of a "rate adjustment," he said.

Utility companies typically will increase the rates in the first year by front-loading all the cost of the smart meters, he said, and will maintain those higher rates in subsequent years even when the cost of installing smarter meters has been covered — effectively putting extra money “right into their pocket.”

“The rates go up in the first year, but they never go down in years 2, 3, 4, 5, etc.,” Bathgate said. “I wish my 401K would work that way,” he added.

### **Attorney: ‘yet another invasion of individual liberty, autonomy and privacy’**

Smart meters capture and disclose an extraordinary amount of information about what people are doing inside their homes, W. Scott McCollough, lead litigator on behalf of [Children’s Health Defense’s](#) EMR-related legal work, told The Defender.

“Smart meters are yet another invasion of individual liberty, autonomy and privacy,” he said.

McCollough, a former Texas assistant attorney general and telecom and administrative law attorney, said this invasion of privacy is even worse when smart meters are combined with other Internet of Things devices like “smart” thermostats, refrigerators and washing machines.

“The utility can discern what appliances are being used and even when individual lights are turned on or off,” McCollough said. “It can develop a fine-grained ‘home’ profile that it can then sell to data brokers without user consent using a ‘surveillance capitalism’ model. There are also, of course, [surveillance state](#) implications.”

Smart meters also can “restrict people’s ability to use electricity as they wish by allowing the utility to remotely turn off heating and cooling without user consent — even if the user has medical needs requiring heating or cooling to maintain a prescribed temperature inside the home,” McCollough said.

Additionally, the data collected via a smart meter is relayed to a transfer station, which sends it to a third-party analyst who [may sell the data](#) to [Big Tech](#) companies.

McCollough urged citizens to demand their state legislators enact opt-out legislation, preferably without charging consumers extra fees for refusing the devices.

This was successfully done in Hawaii, where [customers of Maui Utility](#) can choose to opt in — rather than opt out — of having a smart meter installed.

*The views and opinions expressed in this article are those of the authors*

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Suzanne Burdick, Ph.D., is a reporter and researcher for The Defender based in Fairfield, Iowa. She holds a Ph.D. in Communication Studies from the University of Texas at Austin (2021), and a master's degree in communication and leadership from Gonzaga University (2015). Her scholarship has been published in Health Communication. She has taught at various academic institutions in the United States and is fluent in Spanish.

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