

The Smart Meter Hubbub

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Same story, different day.

While the details of specific topics change, people are the same. They commit the same fallacies and errors in thinking, and so the patterns of arguments tend to be the same.

Many power companies are replacing the old analogue meters with digital smart meters – devices that measure how much electricity you use and therefore need to be billed for. The newer meters are able to gather more information about electricity usage, not just overall usage. They can measure when you are using electricity throughout the day, for example. They can also communicate this information to the power company wirelessly, eliminating the need to have someone come to your home to read the meter.



There is an obvious efficiency to this increased data and communication. Further, one of the most challenging aspects of power production is balancing production and demand. Demand also tends to peak at certain times, which means that power companies need to have a lot of extra capacity that kicks in just for peak usage. Peak power production tends to be the least efficient and most expensive.

One hope is that smart meters will allow for peak shaving – giving customers information they can use to shift their energy usage off peak.

So what's the controversy? The same litany of mostly made up complaints and conspiracy theories that seem to crop up for any new technology. Just about every complaint about smart meters has an analogy with vaccines and GMOs, for example, and generally the same crowd are complaining.

Health Effects

As with vaccines and GMOs, smart meter opponents fearmonger about the health effects of the wireless radio signals that smart meters use to communicate to the power company. There is no evidence that smart meters pose any health risk, so instead they try to extrapolate from research on other devices that emit radio waves.

[As I have discussed before](#), while there is some dissent in the research, the majority of studies show no risk from frequent exposure to non-ionizing radiation. Even daily cell phone use has not been clearly shown to have any risk. At best opponents can extrapolate from biological changes associated with non-ionizing radiation exposure, but there is no reason to think these changes pose any risk. Their best argument is that, "Stuff happens, therefore risk."

So next they play the precautionary principle charge. Essentially they keep moving the goalpost to greater and greater evidence for an absence of health risk, to the extreme of demanding proof of zero risk. There is no such thing in science, of course, all we can say that any potential risk is too low to detect.

They then appeal to bogus claims, such as the notion that some people are extremely sensitive to electromagnetic frequencies (EMF). [Science is not on their side here either](#). Studies generally show

that people who claims to be EMF sensitive cannot even tell when they are being exposed (as long as they are blinded).

They then appeal to the World Health Organization's International Agency for Research on Cancer (IARC) that classified EMF as a 2b carcinogen. This is the same group that classified glyphosate as a probable carcinogen. This agency is notorious, however, for having a very low threshold for classifying anything as a possible or probable carcinogen. Citing them is cherry picking one end of the spectrum. I understand the IARC wants to capture all possible carcinogens and emphasizes the precautionary principle, but at this point they are doing a disservice by confusing the public about actual risks. They should come more in line with other health and scientific agencies.

Further, plausibility makes the argument of a health risk ridiculous. [In a recent video making the rounds](#), Kirk Rutter shows a smart meter as constantly putting out angry looking electrical activity. The video is an excellent example of one-sided propaganda. [In a 2013 article](#) Bailey and Borwein put smart meter activity into perspective:

It is also instructive to compare the radiation levels of smart meters with those of other wireless devices. Smart meters only transmit data for roughly 1.4 seconds per day, at very low wattage. And even if one stands less than one meter (3 feet) from a smart meter when it broadcasts its data, the resulting microwave exposure is 550 times less than standing in front of an active microwave oven, and 1100 times less than holding an active cell phone to one's ear.

And you probably won't be just three feet from the smart meter during this 1.4 seconds as they are usually placed outside the house. The contribution of a smart meter to your overall exposure to EMF, therefore, is negligible. One brief conversation on a smart phone will give you more exposure than decades of having a smart meter on your home.

Incidental Risks

Anti-smart meter activists make a lot over the fact that there have been reports of spontaneous fires of smart meters. They present this as an inherent risk of smart meter technology. This, however, would be the equivalent of opposing smart phones because of the recent problems with the [Galaxy smart phone catching fire](#). One particular model of smart meter, that can be remotely turned on and off, was prone to a failure that could cause fires. These meters were recalled and replaced.

The overall failure rate of smart meters, given the millions that are installed, is pretty low. Failures and recalls are common with many technologies (cars, for example) and is not a reason to oppose the technology, just to properly regulate it.

But if you are anti-smart meter you are likely to marshal every argument you can against them, whether they are reasonable or not.

Big Brother

Perhaps the real reason that many people are against smart meters is that they represent a further intrusion by the government and corporations into our private lives. Privacy is a legitimate issue in general, but I don't think the smart meter opponents make a compelling case. It is mainly built on innuendo and the slippery slope fallacy.

Just watch the video I linked to above. They go from – the electric company will at first suggest that you change the timing of your activity to off peak (such as when you eat dinner), but soon they will be requiring it. Really? That's a big leap, from providing information to customers to controlling when they eat dinner. This is not a natural evolution, as the latter requires a society very different from the one we live in.

They also imply that power companies will be rationing electricity. Well, they do that now (they are called brown outs), when demand exceeds capacity. They don't want to do this, because they make money when they sell you electricity. In fact, the whole idea of peak shaving is to avoid rationing by preventing demand from exceeding capacity. Smart meters, if anything, will make it less likely that the power company will have to ration power.

There is also a heavy implication that smart meters will be used to spy on you. This is where things get a little complicated, because there is the potential to gather a lot of specific information about your energy usage through a smart meter. Right now the only information power companies are using is how much energy you are using throughout the day.

This ordinary use of smart meters is often conflated by opponents with two distinct and legitimate concerns. The first deals with smart meters as part of the "internet of things." When all of your appliances are also smart, including cameras for monitoring your home, then the potential to use such devices to spy on you is much greater. This is part of a much bigger concern about privacy in an age of ubiquitous digital technology.

Smart meters themselves are a minor part of this, when you consider the amount of personal information available through your e-mail, web browsing, and smart phone usage. We definitely need to have careful laws to protect our privacy, and limit what the government can do, in light of all this technology. This is not a reason to oppose smart meters specifically, however. Using e-mail and complaining about smart meters makes no sense. Rather, we need to lobby for protection of our privacy overall.

The other legitimate concern is hacking. A hacker could theoretically get data on energy usage from a power company's network and use that to find out who is not at home, for example.

There are also benign uses of this information, such as epidemiological research. There already are systems in place to protect privacy when doing such research, by anonymizing any information, for example.

Conclusion

Smart meters have a host of benefits and the technology is rapidly being deployed. There are no legitimate health concerns, and the plausibility of such concerns is essentially zero. The technology is basically safe, but of course when you deploy millions of anything into the real world there will be the occasional failure. Existing systems are adequate to deal with them.

The privacy issues are real, but exaggerated and misplaced by smart meter opponents. Opposing smart meters will not solve these issues, as they are not specific to or limited to smart meters. Rather, we need to make sure there are proper regulations protecting our privacy from the abuse of any technology that can potentially be used to gather information about us.

Further, we need to make sure that smart meter systems are secured from hackers. Again, this is a ubiquitous problem with digital technology, and is a real and increasing problem. It is not specific to smart meters, however. But yes we need to require power companies to take reasonable steps to secure the meters and the information from them.

As is often the case, opponents of new technologies raise many bogus objections, use sloppy logic, invoke conspiracy theories, and generally give a bad name to the entire endeavor of being an effective watchdog on new technology, the government, and corporations. They actually hurt the cause they champion.

They can get in the way of addressing the real issues, which are often more complex and nuanced. They focus attention on the wrong thing (like smart meters or GMO technology) rather than on the actual important issues.