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To: WUTC Policy Makers for Smart Meter Programs
Docket # U-180525
Title: Concerns about Insufficient Examination and Regulation of Certain Aspects of Impending Smart Meter (AMI) Programs of WA
Date: January 26, 2019

Introduction: We, the citizens of Whidbey Island and members of CLEAR (Citizen League Encouraging Awareness of Radiation), are informed that Puget sound Energy intends to install a transmit/receive AMI unit on essentially all of the buildings of our island. We have many concerns about several aspects of this program that have seemingly not been adequately understood by policy people or addressed by WUTC policies, leaving PSE a pathway to purvey unclear, inadequate information along with potentially harmful and expensive policies and procedures for customers.

WUTC requested public feedback for docket U-180525: We have several concerns under the category of "additional questions for consideration" as well as comments on meter "performance and accuracy," as well as questions of the WUTC on customer privacy.

Customer Communication: A WUTC proposed policy in WUTC DOCKET U-180117, PAGE 9, III. CUSTOMER COMMUNICATIONS:

> "**Customer communication is vital** to the successful implementation of any advanced metering infrastructure deployment. Timely communication across several media will help ensure customers are fully aware of the changes to their utility services. **Information about customer choice for advanced meter installation is an important component of these communication efforts."**

Public Communication Deficits: Smart meter public information from companies thus far can often be characterized as a) missing; b) inadequate; and/or c) inaccurate, even deceptive.

1) An example of this so far is PGE (and WUTC) publicity on smart meters. Example: PGE FAQs on its website. One such: "*These meters produce virtually no EMF because there's no real current flowing through them. You'll find more EMF in a lamp plugged into a socket in your home.*" This is patently false. And deceptive. The Itron meter company, for example, claims "*When a smart meter is transmitting, the exposure to radio frequency energy at a distance of 20 centimeters (8 inches) from the meter is 0.06 mW/cm² at 902 Mhz.*" (Link) This is widely known to be a very intense output of EMF, and Itron's meters have typical behaviors of all the meters on the market.

2) Another claim is that, after listing all other sources of wireless energy in the household (cell phones, routers, etc.,"*These items typically emit much more RF than your utility meter, which is usually installed on the exterior of a building.*" This is deceptive, comparing apples to oranges. Smart meter's 24/7 spiking emissions (the most dangerous kind of EMF can't be turned off. All other devices are used far less than 24/7. Duration is a key factor in exposure measurement. The strength of the emissions goes readily (with some attrition) through the wall behind the meter (near where a bed, couch, or chair may stand inside) as well as through windows exposed to it. These are received full-body, over periods of many hours creating cumulative exposures worse than the other items mentioned create. Also there are often claims that emissions from smart meters are only occasional in a day. On this Youtube a California engineer (Link) explains why smart meters actually radiate emissions 100 times more than does cell phone usage by a typical person.

3) A WUTC 'Smart Meter Basics' document was distributed by PSE in March 2018 using the phrase "*brief low-level radio frequency (RF) transmission signals..."* This is inaccurate/deceptive. First, as described above, it is not low-level. Also, a lawsuit against PG&E obtained secret information on their (typical type of) smart meters. What was disclosed (after PG&E had been downplaying emissions was that strong spikey signals from smart meters can occur as many as 150,000 times per day as meters coordinate with all others in a neighborhood (as a "mesh") then periodically send off combined usage data to the company. "*Brief, low-level"* doesn't convey what is going on.

4) A fourth mis-information move in all the smart meter company literature is that it is safe because it is "FCC-compliant." This is a well known trope. The very dated, archaic 1996 FCC regulation of basically "no cooked skin means the EMF is safe"-- equivalent to a powerful 10,000,000 uW/m^2 , has been thoroughly rejected as unscientific and far too high by virtually all international scientific bodies and hundreds of peer-reviewed studies. (It is 100 times higher than Numerous peer-reviewed studies reveal toxic effects from EMF of the strength of smart meters ranging from fuzzy-mindedness, to DNA breaks, to blood-brain barrier leakage, to brain cancer and more. The WUTC must insist that a Smart Meter purveying company present *real* safety information and indeed, test their product in real household current demands, to see that it is *a thousand times below* the FCC standard in EMF emissions at least.

We advocate that the WUTC must be even more stern in requiring that companies like PSE be crystal clear and truthful with information related to a variety of issues that always turn up in smart meter programs nationwide.The WUTC must not be party to misinformation.

Customer Meter Opt-Out Program: Numerous variations occur among utilities nationwide in so-called opt-out programs that allow a customer to choose whether or not to have a smart meter installed, and what kind of replacement would be used in the absence of a smart meter. Further, if an opt-out occurs, what kind of monetary demands on the customer will a utility make? The WUTC has spoken with some detail last March about its preferences for actions that Washington companies should take in this regard. WUTC specified that a customer be presented with an option to have a non-broadcasting meter, a non-punitive costs-only installment fee for it, no payment for purchase of it (like all other meters in the system), and a costs-only monthly surcharge for any additional expenses incurred by the company reading this meter and recording results. All this was modestly good as far as it went. Left out was specification that the meter used cold be the original functioning analog meter with perhaps 20 extra years still left on its 30-40 year life, or even a purchased new analog meter. Companies claim that there is no support or supply for the old analog meters they now prefer to call "non-standard," yet the standard opt-out meter in CA is the analog, fully available. The analogs on Whidbey are also not currently read by actual meter readers; a "module" in the meters sends a weekly report of usage to the company through the transmission lines, so one of the biggest advantages of the smart meter program, saved money on meter readers, is nullified. It should be said that a smart meter program with all the compromises discussed in this paper still subjects a homeowner who opts out to a myriad of challenges: dirty electricity from a neighbor's smart meter can pass to other houses through the wires, the outdoors is still blasted with multiple sources of EMF from many homes around the opt-outer; fire-risks to neighbor houses are risks to my own neighborhood especially in fire-prone forested areas; if the system is hacked through smart meter vulnerability my own electricity supply and personal billing data are threatened.

Dirty Electricity: One of the reasons why we citizens of Whidbey don't want AMI meters on our houses is the well known fact that these meters, while measuring current flow, create *dirty electricity,* a spiky, EMF-radiating higher-frequency (2 to 50 kilohertz range) modulation piggy-backing onto the smooth

60-cycle AC waveform. This flows into the full wiring layout of the home they are attached to, making the wiring into an antenna that irradiates house inhabitants with health-challenging EMF. Zoom out to a whole neighborhood of house-wiring antennas, all connected to power lines and that in effect creates a dirty radiating electrosmog in- and out-doors. **WUTC must ask power companies to give an accounting and measurement of dirty electricity behaviors in the meters they choose to install before these are allowed to be compensated by any rate changes.** **increasing rapidlyEMF**

WiFi Radiation Level: The health-challenging aspect of smart meters is partially discussed above under company communications with the public. But to emphasize the importance of this aspect, consider that already an electro-smog of wireless radio frequencies (RF) is being belched out increasingly from ever-changing-and-multiplying forms of wireless devices. A smart meter program can essentially *double* this smog by filling a neighborhood inside and out with millions of EMF signals per day. Though the industry and its regulators always demur to bring up the "H" word, *health*, it must be emphasized that community health is what is put behind the 8-ball by such a program. (An interesting "telling" note: the insurance industry refuses to back the wireless/power/cell industry against any lawsuits about EMF health effects on customers.)
We advocate that the WUTC must require smart meter installing companies to prepare a review of scientific ligterature (not just an FCC standard or a pamphlet from a meter company or old research from industry-hired scientists) that explains in detail how the current science (that includes non-industry researchers) demonstrates that smart meter radiation, with its typical spiking frequencies, with its sometimes small distance from persons, with its 24-7 duration, and with its power intensity, is safe for the health of customers. Reference link.)

Customer Benefits Questionable. Classically every power company selling its customers on the wonders of smart meters claims many customer benefits: savings high among them. Yet in truth, 90% of the benefits actually enumerated are those benefiting the company's operations. Companies try to imply that their grand new efficiencies will trickle down in customer savings. Yet, almost invariably, nationwide, customer bills go up "post-smart-meter-install" rather than down, and customers quickly. realize life has not become simpler, more power-saving, or less costly.

Some States' and cities' regulatory bodies have seen this discrepancy—huge cost for the meter program attempting to be made up by rate increases that companies swore they wouldn't do. Remember: if a company can persuade the WUTC that the expenseive installation and system is helpful to consumers, all expenses will be recouped on the ratepayers' dime *and* must include an automatic 10% bonus legally permitted for all infrastructure investments! Quite a motivation to tout benefits even when they invariably disappoint! Hidden in the background is the fact that smart meter replacements occur on the average every 5-7 years (not the 20 years the companies are trying to make all believe in). Meter replacements make a huge side income for power companies with their 10% equipment bonus.

Many don't see espensive smart meter programs penciling out without losses to ratepayers. The City of Baltimore, the Regulators in States of New Mexico (Link), Virginia (Jan 2019!), Maryland, Kentucky (Link), New Hampshire, New Jersey, California, Massachusetts (Link), the Supreme Court of Maine, the Jackson County OR Board of commissioners (Link), the city of Port Angeles WA --(Link)-- who abandoned a whole smart meter program at half-implementation, realizing it was of no benefit for its cost), and even Great Britain (Link), are just some of the examples of those questioning the worth of these high-cost, error-prone, disaffected-consumer programs. Statements from regulators are commonly like this one from Lisa Madigan, Illinois Attorney General, who wrote, "Utilities have shown no evidence of billions of dollars in benefits to consumers from these new meters. The utilities want to

experiment with expensive and unproven technology, yet all the risk will lie with consumers." Or Dr. Chang, power consultnt for the Maryland power commission put it this way: "My analysis indicates that the Company's Smart Grid Initiative has present-value **benefit-cost ratio of 0.75**…benefits from the Initiative are substantially less than the Company's projections."
We urge the WUTC to ask power companies to map out the <u>actual</u> costs they anticipate ratepayers will be incurring from the program, given the frequent 5-7 year replacements.

Personal Data Security: Meter companies offer Power Companies more than meters. They offer plans and equipment for billing and data management. This can include ways to sell data to companies that can turn it into marketing. The Supreme Court has made clear that the fact that sensitive information is held by a third party does not automatically defeat an individual's expectation of privacy in the information. Detailed electrical usage habits, 24/7, of individual householders can be gleaned from smart meter data. It is a matter of the 4th amendment that his data cannot be used without a customer's explicit consent. **It is important that the WUTC continue with its work to proscribe the sale or spread of data and, as it wants to do, remove all identifying characteristics from it if it is passed anywhere for analysis of community power habits.**

Fire threats: A convenience feature that companies tout as a cost saver (for the company, not the customer) is the remote disconnect switch by which a building's power on-off can be controlled from central headquarters. In this era of drought conditions it is dicey, to say the least, to install on every house something electrical that, by its very design, raises the probability of fire that could not only damage a house but that could destroy a whole dry area with a grass or forest fire. (Note the current PG&E debacle and bankruptcy around equipment-caused deadly forest fires.) The flaw: using a lightweight piece of electronic equipment with a heavy switch in it for turning off high current circuits to a home is an accident waiting to happen.

Engineer Bill Bathgate again: "The biggest weakness is in the power disconnect, it suffers from a small surface area for the disconnect contact that would be prone to excessive heating, likely resulting in contact pitting and carbon deposits, not readily visible by the customer; there is no sensory circuit that could detect it and report it to the consumer or the utility. This design would be prone to creating unpredicted fires." The plastic cases are clearly subject to melting and burning, switch contacts have the potential to make poor contact and generate heat, and circuit boards tend to heat up with voltage and current variations: circuit board fires in general are nothing new to forensic investigators. Surge protectors are often removed from smart meters to make more room for circuitry. In effect, because of this flawed, fire-causing design, power companies have in their program a "problem waiting to happen" that can cause fire liability payouts and continued spending for attempts to reduce fire liability. One of many examples: On Jul 24, 2014 Portland General Electric announced it was replacing 70,000 smart meters due to fire risk. Risk is not just theoretical – smart meter fires on houses are known by literally every utility that uses them; many firefighters are acutely aware of them, yet often they are reported as caused by other factors to avoid liability controversies. .
The WUTC needs to insist that smart meters chosen by companies undergo more than "Underwriters" standard tests; they must test rigorously for fire-proneness before accepting a product. If these tests are not documented a company should not be allowed to be reimbursed for their purchase or use from rate increases.

Hack-ability by terrorists. Microsoft says: "*There is no way to guarantee complete security on a wireless network.*" Period. Security experts have examined the smart grid circuitry and networking strategy at length and have concluded that every smart meter introduces a new nodal point through

which a moderately skilled hacker can enter the network and proceed toward the whole customer data and information repository of the company. PSE tries to assure on its site: "We maintain a comprehensive cyber-security program based on national standards followed by other companies in the energy and defense industries." Numerous hacks have occurred in just such companies' "totally secure" systems. Creating thousands more hackable nodes almost assures that these assurances are a version of "whistling in the dark."

Furthermore experts assert that the switching ability of the smart meters combined with its interconnection with other meters could enable a meter hacker to expand control to part of a city and instantly switch off power to a whole area of the city, wreaking disconnect havoc, yes, but even worse, switching all back on at once then causes a power draw spike at the generators, transformers and lines--almost certainly destroying or severely damaging them. A long blackout would ensue. Analog machine-type meters don't have any of this vulnerability.
The WUTC needs to demand even more certainty of, and redundancy of, security measures as these many thousands of vulnerable nodes are added to our power system.

Summary: We ask the Washington Utilities and Transportation Commissioners and Staff to do their job as articulated in the mission statement: *"Our Mission is to protect the people of Washington by ensuring that investor-owned utility and transportation services are safe, available, reliable and fairly priced."* We submit here that the proposed installation of AMI/Smart Meters in Washington State will not only be a financial burden to the citizens, i.e. "not fairly priced"; but are not safe for health. The WUTC must examine closely the brief rationales and flawed standards that power companies use to quickly convince us that smart meters are health safe. Wutc must equally study in depth how more and more states are coming to realize the cost/benefit analysis does not warrant proceeding with the heavy financial investment in AMI/Smart meter infrastructure. A good example (among many mentioned above) is New Mexico, where last year commissioners, "unanimously rejected the Public Service Company of New Mexico's proposal to install Advanced Metering Infrastructure, called smart meters, citing rate increases, an excessive opt-out fee, and layoffs, as deal breakers." Commisioner Chairman Sandy Jones said, "After several hearings, I felt the program was clearly not in the best interest of the public."