



*Always There for You!*

# BWP Modernization Program

BWP is nearing completion of the installation of new state-of-the-art meters at Burbank homes and businesses. These new meters will help us improve your service and, over time, will provide you with the information and tools that give you better control over your energy use and your bill.

New meters are a major step on the path toward a more informed energy future. While full implementation of some features is a few years away, grid modernization will deliver electricity using digital technology to save energy, reduce costs and increase reliability.

**Q:** Why do I need a new electric meter?

**A:** Most of the meters in the City are 25-30 years old and are in need of replacement. Leaving the aging meters in place creates four issues. BWP would need to secure consumption data from the old meters via more traditional collection methods which are not as efficient and add to staffing and costs. We'd need to maintain separate rates and customer record systems adding further inefficiency and costs. We would not be able to detect whether an outage occurred at the property, delaying response time to fix the problem. And, customers would not be able to take advantage of new pricing and program options in the future. Thus, leaving the aging meters in place is not operationally efficient, not cost effective, and is contrary to BWP's commitment to keep costs down.

There are four differences between the old and new meters. The new meters can:

1. Measure consumption more than once a month;
2. Send consumption information wirelessly to BWP so meter readers do not have to be dispatched to read the meter;
3. Remotely connect service; and
4. Alert BWP if there is no power to the meter so staff may be dispatched quickly if an outage occurs.

**Q:** Will paying for the new systems make my bill go up?

**A:** The total cost to complete the upgrades and implementation of our intelligent infrastructure is approximately \$60 million. BWP was the recipient of a \$20 million federal grant in 2009 specifically for this initiative. We anticipate being able to recover a large portion of the remaining costs through long term operational efficiencies that will be enabled by the new systems. A more modern BWP electric grid will be able to offer new services and products to Burbank businesses and residents that will create additional revenues, which will help offset a significant portion of the costs and help keep rates low.

**Q:** Meters installed in other areas caused increases to customers. Will that happen in Burbank?

**A:** When Pacific Gas and Electric Company installed their advanced meters they passed along the costs directly and immediately to their customers. BWP is not doing that. Modernization efforts are not new. Changing meter reading technology has been on the horizon for well over a decade. For about eight years, management has been working with meter reading employees and their Union to ensure they were aware of this transition and were provided opportunities to train and cross-train for other positions. Over the past four years, our efforts have paid off and many of those employees have successfully transitioned to other positions or reached retirement age. These savings are part of efficiencies gained through advanced metering technology.

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Q: [To whom does the electric meter belong?](#)

A: According to BWP's Rules, "transformers, meters, service wires, and other related facilities installed by BWP...on the Customer's premises for the purpose of delivering and measuring electric energy, shall continue to be the property of the utility and may be maintained, repaired or changed at any time" (Rule 2.54a). For a complete copy of our Rules and Regulations, please visit [BurbankWaterAndPower.com](http://BurbankWaterAndPower.com).

Q: [Do you need to be in my yard to read my new meter?](#)

A: Our new meter technology utilizes a secure, private wireless network to transmit the meter information to BWP. We may visit occasionally to verify the meter is operating properly and that your utility service remains reliable and safe.

Q: [If BWP already has a billing system that works with the old meters, why can't BWP maintain both the old analog meters along with the new digital meters?](#)

A: The issue is not analog vs digital, it is ensuring continued operational improvement and charging a price for electricity that reflects the cost of electricity and avoiding duplication of effort and redundant processes. For many reasons the value of electricity varies from moment to moment depending upon a multiple of factors. Paying a price that reflects the cost is generally practiced and required in the utility industry in the U.S. These new meters allow for pricing electricity so that the price might better reflect the cost to provide the electricity. With this information customers may participate in reshaping the energy use profile in the city which helps contain costs for all customers. And, without full participation, several billing processes have to be duplicated and maintained adding unnecessary labor expense and inefficiency.

Q: [Are these meters accurate?](#)

A: Meter accuracy remains a primary concern for BWP. We will continue to hold meter manufacturers to the highest standards and have all meters tested at the factory before they are shipped. Meters are further tested for accuracy by BWP technicians before they are installed. If a shipment has too many meters that fall outside BWP's guidelines, the entire order is rejected.

Q: [Today's digital devices seem easy to upgrade. Can BWP upgrade meters to add features that monitor or control appliances to lower customer usage?](#)

A: There are meters that have two radios with additional features enabling communication to appliances in the home. Some utilities are installing these types of meters. BWP is not. BWP meters have just one radio in them which allows the meter to talk with the utility and send consumption information for billing purposes.

This decision was based on three guiding principles: a one radio system minimizes the cost of the program; using the meter as a "gateway" into the home is not as efficient as using existing and available internet services; and, leaving the "gateway" decision to the customer puts the control and choice for future features directly into the hands of the customer.

BWP does not intend to control appliances, nor are we considering monitoring appliance use. Hence, the meters selected do not contain two radios, which is necessary to control appliances through the meter. Simply presenting the customer with a price that reflects cost will allow the customer to make decisions to suit their individual situation.

Q: [Can the meters be upgraded remotely?](#)

A: The meters BWP has selected have the capability to be upgraded, however, that would require a firmware upgrade, the desired feature to be enabled, AND the purchase of another radio to transmit into the house.

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While meter manufacturers may be willing to provide such an upgrade, hardware cannot be upgraded remotely. Firmware may be upgraded remotely, however it is limited by the hardware installed.

**Q:** [Is any of my personal information transmitted?](#)

**A:** Absolutely no personal information is transmitted through the network. The only data being transmitted is meter consumption data that is not associated with an address or customer until the data is safely in the billing system at BWP's facility. In addition, all meter data is transmitted through BWP's dedicated secure networks that use multi-layer authentication and encryption technology recommended by the National Institute of Standards for critical infrastructure and is on par with data security levels used by the U.S. Department of Defense.

**Q:** [Will BWP share my information with a third party?](#)

**A:** BWP is legally required to ensure and maintain customer information confidentiality. Protecting customer privacy and ensuring the confidentiality of individual consumption information remains one of BWP's highest priorities. In our 100 years of service we have never had a breach of security and we will continue to meet this standard.

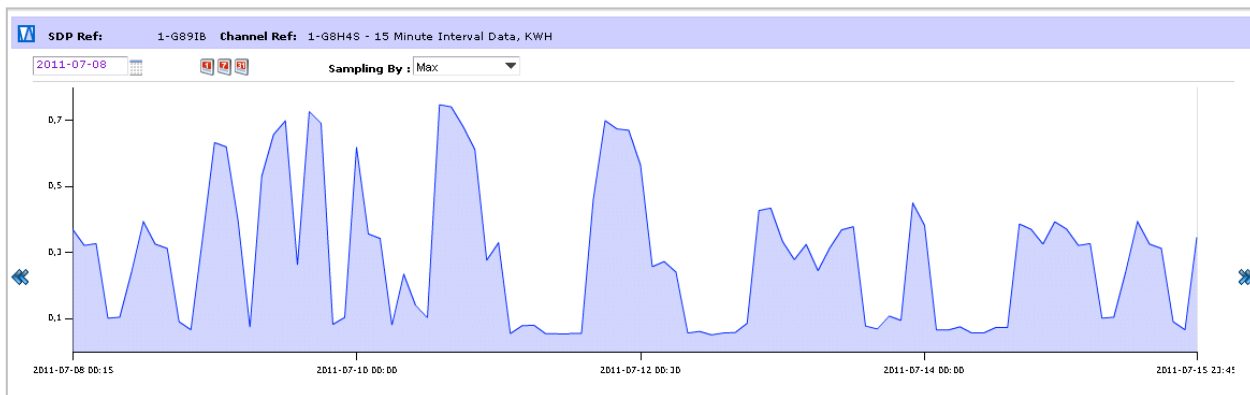
All customer consumption data, billing data, names, addresses, and phone numbers are strictly maintained and are never shared, sold, or in any way provided to an unaffiliated third party. All employees and vendors who work with customer data must sign a confidentiality agreement indicating that they understand their obligation and consequences of violating that obligation.

**Q:** [Can the new meters monitor what is happening in my home?](#)

**A:** BWP needs consumption data to accurately bill customers for water and energy use. The new meters do just, and only, that. They measure consumption. In this way they are no different than the aging meters they are replacing. These meters are not capable of wiretapping, investigating, monitoring, or surveying appliances in the home or determining the location or activity of individuals within the home.

**Q:** [Even though BWP meters do not have a radio to communicate to home appliances, can't the meters collect information at the appliance level to tell what is being used in my home?](#)

**A:** These meters collect consumption for the whole house. They cannot collect data at the appliance level or at the circuit level. The meter stores the data and it is transmitted to the utility once a day. No real-time information is ever transmitted. The image below shows consumption readings. There is absolutely no way anyone can tell what someone is doing in their home, merely that energy is being used.



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Q: Will BWP penalize customers who have “bad energy- use behavior” or over consume?

A: The whole idea behind meters is to bill customers for the electricity they purchase. Consistent with BWP’s direction over the past decade, we will continue to recommend water and energy pricing that accurately reflects the cost of providing the service.

Q. Are these meters safe?

A. In response to public concerns over the safety of Smart Grid infrastructure, the California Public Utilities Commission instituted an independent study to determine any health risks. The results of that study were that the Smart Grid infrastructure being deployed throughout California **does not** pose a health risk and the radio frequency emission levels are significantly below the health standard set by the Federal Communications Commission.

Q. Do Burbank's new meters create or contribute to “dirty power”?

A. No. “Dirty power” is a term some use to explain electrical surges or interference on the power lines. Some believe that smart meters will increase demand for electricity and create noise within the distribution system. The reality is that smart meters require only a small amount of power to operate and will not create dirty power within the grid. In addition, some believe surges, interference or noise on the power lines are caused by "dirty power". Typically surges in electrical demand are caused by sudden starting of large devices that draw large amounts of power such as your home air conditioning unit or industrial electric motors. Some remote meter reading technologies, such as Power Line Communications (PLC) or Broadband -Over- Power Line (BPL) occasionally contribute noise on the power lines, hence the term "dirty power".

Q: What Is Radio Frequency?

A: Radio frequency (RF) is a term used to describe radio waves, wireless signals, and electromagnetic fields. Although some have expressed concern about the level of RF from smart grid infrastructure, specifically the meter, the RF exposure from these devices is significantly less than many devices you already use in and around your home.

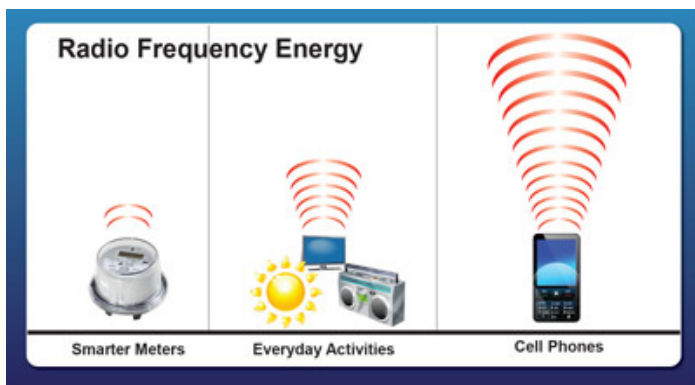
When it comes to the safety of wireless devices and systems, there are three key considerations: proximity to the device; intensity of the transmission; and duration of the transmission. We have selected a technology that uses low frequency to transmit information on an infrequent basis, less than one minute per day in total with individual transmission occurring in nanosecond bursts.

Most of the smart grid components, with the exception of the meter, will be placed on traffic signals and streetlights, with some on utility poles, 25 feet above street level. RF emission from these devices is similar to that of the meter, both of which fall dramatically at a distance of just three feet.

Also, meters are typically on the side of a house or garage. BWP has selected meters that only communicate with the utility to provide consumption information for efficient billing. That means the RF transmits away from the wall it is mounted on, further reducing any exposure someone would experience when inside their home or office.

Shown below is a representation of RF exposure from a meter and commonly used devices, including cell phones. A typical cell phone has transmission levels that are almost 1000 times higher than any component of the Smart Grid; microwave ovens are over 100,000 times stronger.

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Q: Since RF signal strength can be increased or decreased, will BWP be controlling signal strength?

A: BWP has no operational need nor desire for such control.

Q: If RF energy emits in all directions, doesn't that mean RF is being transmitted into homes?

A: The meter uses the same kind of antenna you find in most Wi-Fi devices and cell phones. The meter's radio utilizes the small dipole antenna as the means to radiate and receive RF energy. The most common antenna is a quarterwave dipole that is either horizontally or vertically polarized. The dipole type of antenna is used because its emission pattern is generally omnidirectional, meaning it has the capability to transmit in any direction to ensure it may successfully find a transmission path. Since the placement of the meter in relation to other meters and collectors is not always known, the omnidirectional capability of the antenna allows the use of a single type of antenna to meet most all field placement limitations. While this feature permits transmission in all directions, the actual transmission is limited by its placement within the meter as well as the structure to which it is attached. The antenna is positioned within the meter so that it limits its broadcast path away from the house. Transmission that might go in the direction of the house is further weakened by materials such as metal panels, sheetrock, wood, wire mesh and stucco.

Q: If meters are sending out RF energy to reach collection receivers, is the RF energy going through homes?

A: Radio waves are reflected much like light waves. Just as light is transmitted from a light bulb to a book allowing you to read, the light reaches the book without being transmitted through your head.

Q: Studies seem to indicate RF from cell phones is harmful. Do these studies apply to wireless radios used in BWP meters?

A: The recent release from the World Health Organization reclassifying RF as a possible carcinogen to humans is based on the use "associated with wireless phone use".

Understanding the impact of RF exposure requires three considerations: proximity to the source; intensity of the RF; and, duration of the transmission. Cell phones are typically held close to the head for many minutes a day. The exposure to RF from wireless telephones is more proximate and longer than exposure from a meter.

BWP's meters use a low powered (non-ionizing) radio frequency (RF) based on IEEE802.15.4 standards and protocols. Specifically, the meters use a low data rate spread spectrum modulation technique on a constant carrier frequency. This RF operates well below the limit set by the FCC which has a significant margin of safety built in. The meter's radio does not operate in continuous mode. In other words, the radio will transmit throughout the day at various times. It is estimated that a meter's multiple transmissions would be an aggregate of a few minutes total per day. This technique is not to be confused with pulsed RF systems like radar or electromagnetic pulsed weapons.

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The World Health Organization RF Fact Sheet reviews the scientific evidence on the health effects from continuous low-level human exposure to base stations and other local wireless networks. For a link to this and other factual reports please visit us at [BurbankWaterAndPower.com](http://BurbankWaterAndPower.com)

Q: Does a collection of meters, such as in apartment building, have a compounding RF effect?

A: The meters must coordinate their transmissions so that they can be effectively heard. If all the meters transmit at the same time they interfere with one another. Specifically, the meter's transmissions are based on the IEEE 802.15.4 MAC (Media Access Control) layer. The 802.15.4 protocol uses CSMA-CA (Carrier Sense Multiple Access with Collision Avoidance) to avoid transmitting during periods of channel congestion caused by other nearby meters or Wi-Fi equipment. The result is that a BWP meter will not transmit if it determines the RF channel is being used by another device.

Q: Is there a report on BWP's selected GE meters and one-way Trilliant communication devices?

A: On the BWP website is a link to a report that summarizes the radio frequency safety of these meters and the wireless communication system that "speaks" to the meters. The report states "Even if a person were to stand next to a SecureMesh wireless meter for a prolonged period of time, the resulting radio exposure would be hundreds of times lower than the maximum levels allowed by safety standards, where those maximum levels ensure no adverse health impacts. With most meters installed in relatively out-of-the-way places and only active for minutes during each day, the typical radio exposure is minimal."

Q: Will smart grid devices interfere with other household devices?

A: For a variety of reasons, meter interference with other home electronic devices is highly unlikely. Typically, electronic devices are designed to "share the road" and digital devices, like the electric meter, are designed to operate in this "noisy environment" without degradation of service. BWP's infrastructure uses a higher radio frequency bandwidth than most household appliances, operating at 2.4 GHz rather than the 900MHz of many electronic devices and will transmit for less than a few minutes each day.

Q: Has BWP conducted in-home interference tests?

A: BWP has responded to individual complaints of interference after a new meter was installed by conducting tests in the home. In each reported case of interference with other home devices, BWP was able to identify the source of the interference and recommend measures to correct the problem.