



Questions & Answers

Water service meter requirement

Why do I have to install meters?

Water systems must install a meter at every direct service line connected to the main water distribution pipe (WAC 246-290-496(2)). Water systems must also set conservation goals. It's much easier to set a goal while looking at historical water usage from service meters.

Service meters give customers information to help them understand their individual consumption patterns. Depending on the type of meter, they can provide instantaneous, hourly, daily, weekly, monthly, seasonal, and annual information that tells the story of water efficiency.

How will meters help reduce leaks?

State law holds water systems to an accountable standard of no more than 10 percent distribution system leakage. Installing and collecting information from source and service meters lets water systems determine whether they meet those standards. It also helps justify how they and their customers are efficiently using the water resources of the state.

Are there other benefits related to meters?

Yes. Although, the state doesn't require consumption based water rates, meter installation can add more revenue if you base your rates on actual consumption (the more water a homeowner uses, the more they pay). It is up to the water system owner or manager to determine how they want to use the meters as a way to pay for needed improvements, maintenance and operation of the water system.

Water rates are more equitable when based on usage. For systems using a flat rate, customers who use a small amount of water subsidize the people that use a lot of water. Water production costs the utility money in pumping and electrical costs, as well as general wear and tear on the system. By basing charges on usage, large water users pay their fair share of the costs.

What legal risk do we incur for not installing meters?

If you have active unmetered connections, your water system is out of compliance with state law. The Legislature required us to adopt a compliance strategy using the full range of compliance options available. This could lead to violation notices and penalties.

Who pays for service meters and how do I bill my customers?

The water system not the customer is responsible for metering the system. We recommend that you fund the meter installation with reserve funds. If you haven't saved the necessary funds, consider a loan. Your water system will probably need to adjust water rates to repay the loan. Installing all the meters at one time will reduce costs to the customer by reducing mobilization costs of the contractor.



HELPING TO ENSURE SAFE AND RELIABLE DRINKING WATER

How much do meters cost and can I get funding?

Most water systems report paying \$800 to \$1,200 per connection for labor and materials. Water systems can use Drinking Water State Revolving Funds to install meters, but only if they are part of a larger improvement project.

We don't recommend billing customers for a one-time cost of the installation. It may be difficult for them to afford the unanticipated cost. If you do pass the cost on to customers, very low-income homeowners may be able to borrow the cost of materials and labor needed to install a meter from USDA Rural Development at 1 percent interest.

What type of meter should I install?

That depends on the goals you have for collecting accurate information, ease in collecting data, or in reducing non-revenue water. Avoid going with the cheapest meter. A reduced lifespan and poor performance or inaccurate readings will offset the initial cost savings. If you want to capture the lowest flows for improved accuracy and reduced non-revenue water, choose technology that meets those goals.

There are two categories of meters. Both pass water through gears in the register, which move the measuring element and record motion on odometer-style wheels.

Positive displacement meters function by displacing the volume of water moving through a chamber with a rotor inside.

Velocity (non-displacement) meters function by measuring the velocity of flow through a meter chamber, which converts speed into volume.

You can find manufacturers or vendors online, ask your certified water system operator, or inquire with a nearby larger water utility. You will not find residential-type meters in big chain suppliers like Home Depot or Lowes.

Whatever meters you choose, try to use the same meter type and vendor. Mixing types and vendors will make it more difficult for you to take meter readings for billing and reporting purposes, and may result in errors that lead to unrealistic water loss percentages.

Are there considerations for residential connections?

There are several types of meters for residential connections. Most homes require a $\frac{5}{8}$ -inch meter but, if demand is high, a home could require a larger $\frac{3}{4}$ or 1-inch meter. Larger residential meters tend to be less sensitive to the lower flows common within homes.

Manual-read meters require walking to each property, opening the meter box lid, looking at the meter and recording the numbers from the register. While less expensive to purchase, reading meters can be time consuming. Errors are more likely when manually reading, recording or transferring data.

Remote reading equipment and software cost more, but reduce the time it takes to read meters and often offer enhanced features that customers appreciate. For example, they help to avoid high water bills by detecting leaks more quickly, give customers more control and provide more accurate and reliable information. For these reasons, they may improve trust in the water system.

Where should I install the meters?

Most meters are outdoors at the property line, near the curb or street. Some are indoors, usually in a customer's basement. There are advantages to both, and most utilities prefer outdoor meters.

	Outdoor meters	Indoor meters
Pro	<ul style="list-style-type: none">• A meter at the property line will detect leaks that occur on a customer's property.• They can install shut-off valves and cross connection devices in the same box as the meter.• They provide easy access for meter reading, replacement and maintenance without entering a customer's home.	<ul style="list-style-type: none">• May be less expensive to install while trying to avoid disrupting or needing to repair landscaping.• Provide protection from the elements.
Con	<ul style="list-style-type: none">• Higher labor installation costs due to disruption and repair of landscaping or need for frost protection.• Winter weather may limit reading frequency.	<ul style="list-style-type: none">• Must enter the customer's home to read, replace and maintain the meter.• More difficult to locate outdoor leaks on private property.• Leaks on private property will increase water-loss values because indoor meters won't account for outside leaks.

Are there standards for meters?

Yes. You must select, install, operate, calibrate, and maintain meters according to industry standards, manufacturer information, or both (WAC 246-290-496(3)). The American Water Works Association (AWWA) sets standards for manufacturing water meters, which must meet minimum specifications for residential use. For information, consult the *AWWA M6 Manual – Water Meters- Selection, Installation, Testing and Maintenance*. Create an installation schematic to ensure consistency with industry standards. Don't forget to include proper drainage of valve boxes and surrounding area.

How can I find service lines?

- Our regional office may have pipe schematics on file for your water system.
- Use a plumber to locate the water lines.
- Once found, upgrade your service area maps, take pictures, and use GPS to record locations.

Who can install service meters?

First, ensure **sanitary conditions** during installation. Don't ask homeowners to install their own meters because that could put the entire water system at risk of water contamination. Hire a contractor with experience working on water systems. We're aware that some water systems required each homeowner to hire their own licensed contractor or plumber, but this option is not preferred because each homeowner must figure out how to locate their waterline, whom to hire, which meter to choose, where to install it, and how to report water-use data for billing and reporting purposes. It would be much easier to hire one licensed contractor who has experience working on water systems, has all necessary equipment onsite to do the job, and uses the same type of meter.

What if a homeowner won't allow us to install a meter?

Your covenants, bylaws, or ordinances should provide waterline easements up to the property line that enable you to perform maintenance on the service connection, including meter installation. Beyond that property line, any leaks are the property owner's responsibility.

Most water systems own the meter and have the right to select, install, operate, inspect, calibrate, and maintain it as needed. If a customer won't allow you to install a meter you can use:

Covenants, bylaws, or ordinances that allow you to shutoff service if a customer refuses to allow meter installation or tampers with a meter.

Two different rates: Unmetered customers would pay higher rates because the option of unlimited use costs more. Other utilities, such as cellphones, offer the same option.

However, unlike cellphone users, unmetered customers place the entire water system in the difficult position of non-compliance with state law. You may not estimate water use for unmetered active service connections. Also, because you can't account for their water use, an unmetered customer will appear as a leak when you calculate water-loss values.

What should we consider as our contractor installs meters?

Shutoff valve: This important device will allow you to turn water off to a property during an emergency or if customers don't pay their water bill.

Backflow prevention device: These devices protect the distribution system from backflow incidents that might occur on properties with swimming pools, boiler heaters or automatic sprinkler systems.

Replace old or lead service lines: Consider replacing deteriorated service lines or parts and service lines that contain lead.

Frost protection: Depending on location, you may need to install special frost-protection devices.

How often should I read meters?

You must read your meters and report to the state at least once a year. We highly recommend that you base customer bills on usage and collect data monthly. Newer technology meters can record data to the hour, helping you and your customers identify abnormal water use almost immediately and alerting them if they have a leak on their property.

How often should I replace service meters?

Plan to replace meters based on your metering objectives, goals for accurate water use, and improved customer service especially if you want more features and a better return on investment from a business perspective. Many manufacturers offer 15 to 20 year warranties. However, some water systems replace meters sooner to take advantage of new technological advances, reduce non-revenue water, and better understand customers' water use.

Need more information?

Call our regional office.

Eastern Region: Spokane Valley 509-329-2100

Northwest Region: Kent 253-395-6750

Southwest Region: Tumwater 360-236-3030



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