

ORANGE WATER AND SEWER AUTHORITY

AN EXPLANATION OF SUB-METER ARRANGEMENTS

May 2016

Plumbing systems of apartment complexes in OWASA’s service area can be configured in a number of ways. Depending on the configuration, water service to these properties can be provided through an OWASA master-meter which serves the entire complex; separate OWASA meters for each dwelling unit and one or more OWASA meters for common areas; an OWASA master-meter with privately installed “sub-meters” which measure individual dwelling unit water use.

The following discussion focuses on water service because of the difference in the way we charge for water service to master-metered apartment complexes versus individually-metered residences. Sewer commodity charges are the same for each type of customer with one exception; sewer charges are capped at 15,000 gallons per month for individually-metered residences.

OWASA Metering and Billing Configurations

Depending on the design of the property’s plumbing system, OWASA serves apartment complexes in one of two ways.

OWASA Meter arrangement	Meter System	OWASA Water Rates	
		Monthly Service Charge	Commodity Charge
Master-metered	One meter that registers water used by the entire complex. In this arrangement, OWASA has no ability to measure the various ways in which water is used on the property. It is not possible for OWASA to differentiate between what is used in individual dwellings, in common areas, etc.	Varies depending on the size of the meter. (For example, some properties are served by a 4” meter which has a service charge of \$324 per month. A smaller complex may be served by a 1” meter which has a service charge of \$30 per month.)	For the months May through September, the rate is \$7.91 per 1,000 gallons. For October through April, the rate is \$4.16 per 1,000 gallons.
Individually-metered	One meter for each dwelling unit and one or more meters to serve common areas. This allows each dwelling unit to be billed based on the water used in individual units.	Individual dwelling units are served by a 5/8” meter which is subject to a monthly water service charge of \$14.70.	Block rates (per 1,000): 0-2,000 gals \$2.63 3-5,000 gals \$6.39 6-10,000 gals \$7.83 11-15,000 gals \$10.94 16,000 + \$19.79

Sub-meter Arrangements

Certain apartment complexes in OWASA’s service area that are served by an OWASA master meter have elected to install meters for each dwelling unit. These privately installed meters, or sub-meters, allow the property manager to measure water used in each dwelling unit and bill tenants for their proportionate share of the amount charged to the apartment complex through OWASA’s master meter. The North Carolina Utilities Commission (NCUC) reviews and approves sub-meter billing arrangements. The amount charged by the property manager may not exceed the amount charged by OWASA, plus an administration fee of \$3.75 per unit.

If the property does not have a separate OWASA meter for the portion of water that is used in common areas (for irrigation, etc.), then one of four NCUC prescribed methods for determining common area water usage may be used to calculate the amount of water usage to be excluded from the amount allocated to tenant use.

Hot water capture, cold water allocation

Due to limitations resulting from certain apartment complex's plumbing systems, it is not possible to measure the amount of water used by individual dwelling units by conventional means. As an alternative, the NCUC allows property managers to estimate each tenant's total water usage based on the hot water usage of each unit as a percentage of all of the tenants' hot water usage. This method is available only to properties built prior to 1989.

Sub-meter systems – Who is responsible?

Task	Responsible Party	
	OWASA	Property Manager
Maintenance of pipes and equipment up to and including the OWASA meter serving the property	✓	
Reading OWASA's meter(s) that serves the property	✓	
Billing the property manager based on reading OWASA's meter	✓	
Notifying and obtaining approval from the NCUC for sub-metering systems and billing arrangements		✓
Maintaining the plumbing system located "on the customer's side" of OWASA's meter		✓
Installing and maintaining sub-meters		✓
Reading sub-meters (NCUC requires reading to occur at least monthly)		✓
Billing tenants for water usage based on sub-meter readings		✓
Working with tenants to resolve billing issues and answer questions about water and sewer service		✓

Sub-metering can enhance conservation

National studies have shown sub-metering can be an effective conservation measure. The *National Multiple Family Sub-metering and Allocation Billing Program Study* reported that sub-metering achieved statistically significant water savings of 15.3 percent (21.8 gal/day/unit) compared with traditional master metered rental properties (after correcting year of construction, average number of bedrooms per unit, presence of play areas and cooling towers, the utility's average commodity charge for water and wastewater, whether a property was a rental or individually owned, etc.).

In 2011, staff compared historical billed water use for 22 multi-family, master-metered residential complexes in OWASA's service area that were retrofitted with sub-metering systems. (There are more than 3,900 dwelling units within those 22 complexes.) Water use from January 2003 through September 2003 was compared to use for the same months in 2011. Water use per unit declined by more than 20%, from about 130 gallons per day in 2003 to 103 gallons per day in 2011. The analysis did not consider factors such as occupancy rates, fixture change-outs, etc.; however, it is likely that sub-metering was a major contributing factor to the reduction in water use.

Initial Review of Other Utilities' Approaches

From our research to date, we know that a number of utilities around the U.S. have implemented:

1. Increasing block rates for multi-family, master-metered residential developments. The consumption blocks are adjusted proportionately to reflect the number of dwelling units within the development. For example, if the Block 1 rate is for use up to 2,000 gallons a month and the complex had 100 dwelling units, the first 200,000 gallons of water use by the complex use would be billed at the Block 1 rate.
2. Fixed charges that are based on the number of dwelling units within the multi-family, master-metered residential development rather than by the size of the water meter(s) serving the development.

We are not aware of any other utilities in the U.S. that have established separate water and sewer rates for multi-family, master-metered residential customers that privately sub-meter and rebill their residents.