5. Water Metering and Rates

Overview

This chapter describes the City's water metering practices, its guiding principles regarding the setting of water rates, and a summary of current and future water rates.

The City's water rates will need to be increased significantly. The City currently purchases all of its potable water supplies from San Francisco via the Hetch Hetchy Water System. The cost of Hetch Hetchy water is projected to almost triple over the next 10 years because of large new costs associated with its capital improvement program. With such large increases in purchased water costs, alternative supplies (e.g., recycled water) and water conservation programs become relatively more cost-effective. These programs alternatives will, however, also tend to increase costs, but perhaps less drastically. Another related issue is water demand/supply reliability as discussed in Chapter 3. The City would need to pay more to decrease the frequency and magnitude of expected water shortages.

5.1 Water Metering

The City meters all its water customers. In 2002, about 23,000 meters of various sizes were in service. Single-family and multiple-family customers have their meters read and billed on a bimonthly basis. All other classes have their meters read and billed on a monthly basis. Currently, the City makes about 150,000 meter reads per year.

Water meters are subject to wear and deterioration. Over time, meter accuracy decreases, resulting in under-readings and a reduction in revenues. AWWA standards recommend periodic meter testing (one to four years depending on size). In fiscal years 2000/01 and 2001/02, the City tested all of its large meters between 3 and 10 inches. It has a maintenance program for systematically testing, calibrating, and replacing meters based on a per meter cost/benefit analysis. The City does not have a similar systematic program for meters less than 3 inches, although these smaller meters are replaced as problems are identified.

Historically, the City uses staff to walk 154 different meter routes, lift each meter box lid, open the meter cover, read and enter the meter reading into a hand-held computer, and then replace the box lid and walk to the next meter. In September 2002, the City Council approved the purchase of automatic remote meter reading equipment as part of a pilot project. The pilot project targets remote, hillside areas, where meter reading is especially difficult and consists of:

- Converting 838 meters to automatic radio read technology, requiring the purchase of 827 radio-read meter transceiver units, and replacement of 625 old meters.
- Purchasing a vehicle communications unit and meter reading software.

The meter reader will be able to drive through the City and read the meters remotely from the vehicle by radio transmission communication. The radio drive-by technology permits reading 5,000 meters per hour, limited only by the speed limit and a one-mile electronic transmission radius. It is expected that the pilot project will show that the use of remote meter reading technology can significantly decrease the amount of time it takes to read meters, improve meter reading accuracy, and improve the safety of employees. Another benefit is this technology will make it relatively easy to transition from bimonthly to monthly meter reading and billing for residential customers, helping these customers to better monitor their water use for conservation purposes.

5.2 Financial Guiding Principles

In 1993, the City Council approved and adopted seven guiding principles for managing the Water Enterprise Fund as summarized below.

1. Revenues and Expenditures in Balance. The water fund is a self-sustaining enterprise where revenues derived from customer charges should equal the expenditures in running the water system. Revenues must be segregated from other municipal funds and uses, and cannot be co-mingled with other activities. Expenditures include costs for operations and maintenance, wholesale water purchases, capital improvements, and reserves.
2. Capital Improvement Program. The City shall maintain a capital improvement program to provide for the systematic and efficient replacement/renewal of the water distribution system over time. The program will also address steps and actions necessary to comply with federal, state, and regional regulations regarding health and safety issues.
3. Emergency Reserve Fund. The City shall maintain a reserve fund to potentially address emergency engineering projects and/or other costs related to catastrophic or unforeseen circumstances (e.g., earthquake, drought, regulatory change).
4. Basic Service Charge Equal to Fixed Costs. All fixed costs associated with operations and maintenance of the City's water system (e.g, salaries, benefits, equipment, supplies, and services) are recovered from customers via a basic service charge. The basic service charge varies with meter size and needs to be paid by customers regardless of how much water they use. All other costs (wholesale purchase water, electrical power from PG&E, capital improvements, conservation programs, and the City's rights-of-way compensation costs) are collected via a customer quantity charge. A quantity charge is assessed on each water unit (hundred cubic foot) used by customers as recorded by water meters.
5. Cost of Service Equity Among Customer Groups. Each customer group is to pay its fair share of the costs incurred by the City in providing water service. No customer group is to subsidize others by virtue of water rate differentials.

6. Water Conservation Rate Structure. The City is to employ water conserving rate structures that encourage customers to use water wisely. This includes having customers pay higher unit prices for increasing increments of water used during a billing period.
7. Economic Growth and Development. Promote and support the economic growth and development throughout the City by prudent water resource planning.

5.3 Existing Rates

Based on the guiding principles, the City adopted an increasing block rate structure that has been in existence since the drought of 1989. Table 5.1 shows the City's water rates effective November 28, 2002.

For residential customers, the city uses a five-block rate structure where the unit price of water increases from $0.88 to $2.50 per hundred cubic foot (Ccf) with increasing increments of water use. The first block provides a relatively affordable "lifeline" for low water users that use less than 10 Ccf per bi-month (equivalent to 123 gallons per day per house). The $0.88 price equals the cost of water purchased from San Francisco. Water gets progressively more expensive as all water used above the lifeline allotment is charged at the rate for the highest amount used during each billing period. This is an unusual rate system, but reinforces the water conservation price signal.

Multiple-family accounts are included in the residential rate structure. When a site has more than 9 dwelling units, it is given a discount on its monthly service charge to reflect lower water demands. In addition, because multiple-family accounts often have one meter and many dwelling units, the City prorates the block water use thresholds for each site based on number of dwelling units.

The non-residential classes include commercial, municipal, and other customers (e.g., Cañada College). The monthly service charges increase with meter size. The quantity charge is based on a two-block rate structure. If a non-residential customer uses 15 or less Ccf/month, the price is $1.75/Ccf. If a customer uses more than 15 Ccf/month, all water use is charged at $1.80/Ccf. The modest price differential between the blocks reflects the fact that non-residential customers are much more heterogeneous regarding how they use water and their associated volumes. Just because a non-residential customer uses a lot of water, does not necessarily mean they use water inefficiently. Hence, a large rate differential is not warranted or used.

For new development, the City charges a water facilities fee to recover investments made by existing water customers in the water distribution system to accommodate new growth. The facilities fee, effective July 1, 1994, is $1,787 per 5/8" meter equivalent (higher fees for larger meters).

Table 5.1
Water Rates, Effective November 2002

RESIDENTIAL Water Rates

Dwelling Units	Monthly Service Charge per Unit
1 - 9	$10.80
10 – 59	$ 8.10
>60	$ 5.40

Bimonthly Use (Ccf)	Quantity Charge ($/Ccf)
0 - 10	$0.88
11 - 25	$1.75
11 - 50	$2.00
11 - 75	$2.25
> 75	$2.50

NON-RESIDENTIAL Water Rates

Meter Size	Monthly Service Charge
5/8 "	$ 10.80
3/4 "	$ 16.20
1 "	$ 27.00
1 ½ "	$ 54.00
2 "	$ 86.40
3 "	$162.00
4 "	$270.00
>=5"	$540.00

Monthly Use (Ccf)	Quantity Charge ($/Ccf)
0 - 15	$1.75
> 15	$1.80
	$1.80

5.4 Future Rates

Water rates and new development facilities fees will likely increase much faster than the general rate of inflation over the next 10 years. Key rate issues include SFPUC wholesale water rate increases, financial impacts of a proposed expansion of the water recycling system, implementation of an aggressive conservation program, and changes in the water facilities fee to include a water supply component.

5.4.1 SFPUC Wholesale Water Rates

Regarding water rates, the main driver of the water cost increases will be wholesale purchased water costs from the SFPUC. Table 5.2 shows projections of SFPUC water costs based on the SFPUC Capital Improvement Plan and Long-Range Financial Plan. The City can expect its purchased water costs to go up by 188% by 2011/12. The actual rate increases to City customers will be less, as SFPUC purchased water costs amount to only about 50% of current annual enterprise costs. Still, assuming an annual increase of other costs of 3.5% will lead total water fund costs to increase by 7.5% annually out to 2011/12. This is much higher than historical increases experienced by the City.

Table 5.2
SFPUC Wholesale Water Cost Projection

Fiscal Year	SFPUC Water Cost ($/Ccf)	Percent Change
2001/02	$0.88	--
2002/03	$0.88	0%
2003/04	$1.07	22%
2004/05	$1.24	41%
2005/06	$1.30	48%
2006/07	$1.33	51%
2007/08	$1.41	60%
2008/09	$1.76	100%
2009/10	$2.07	135%
2010/11	$2.29	160%
2011/12	$2.53	188%

Source: *Bay Area Water Users Association, Feb 2003.*

5.4.2 Water Recycling Costs

Another key rate issue facing the City concerns the proposal to build an expanded water recycling system, as discussed in Chapter 2. The financial impact of the project will depend on a number of factors, some of which are not known at this time.

5.4.3 Facilities Fee

Facility fees ensure that new development pays its own way and that current ratepayers do not subsidize growth. The City is in the process of developing a new facilities fee schedule. The existing fee was developed and made effective July 1, 1994.

The updated facilities fee has two components:

- Water Distribution System. This component is much like the 1994 facilities fee, but will be updated to account for new investments in the system since 1994. It is calculated by taking the current value of the water system infrastructure, factoring in depreciation and cost inflation, and dividing by the capacity of the system.

Water Supply. This is a new component reflecting the fact that the City is investing in new, relatively high-cost marginal water supplies. In this case the recycling expansion is used as the basis for the water supply component.

This fee will be updated annually to account for cost inflation, such as indexing the fee to the Engineering News-Record Construction Costs for the San Francisco Bay Area. This index is a widely recognized measure of construction costs and many agencies use this index to adjust connection charges on a regular basis.