

WATER FACTS



Volumetric Pricing for Sanitary Sewer Service in California Would Save Water and Money

Volumetric sewer pricing is the simple concept of billing a customer for the volume of water discharged to the sewer based on the water meter reading—water the customer actually uses as opposed to a flat charge. The less water a customer uses, the less the bill will be. As a result, wastewater volumetric rates provide important incentives for water efficiency to customers and offer a more fair pricing structure. According to a study commissioned by the Natural Resources Defense Council (NRDC), converting flat-rate residential customers to volumetric rates could eventually save California nearly 100 billion gallons of water per year, a significant benefit to both water suppliers and wastewater treatment agencies.



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Costly expansion of wastewater treatment capacity can be postponed or avoided by water conservation and efficiency measures, such as water savings gained through volumetric pricing of sewer service. Source: Google Maps and U.S. Geological Survey

THE NEED FOR VOLUMETRIC WASTEWATER PRICING

Although roughly 90 percent of California households served by a public water supplier pay for drinking water through a volumetric rate applied to metered water deliveries, about 70 percent of such California households pay for sewer service through a flat, non-volumetric charge. While fixed charges may be simple, they do not distinguish between customers within the same class who produce larger amounts of wastewater and those who produce smaller amounts.

Fixed charges also do not provide signals to customers about the potential monetary savings from water use efficiency, or onsite treatment and reuse. With sewer charges equal to or greater than water charges in many jurisdictions, the price signal rewarding water efficiency is being cut in half for the majority of California households.

Timely adoption of volumetric wastewater pricing would contribute 10% of the 38 GPCD needed by 2020 for the state to comply with the Water Conservation Act of 2009, counting short-run savings alone.

With California's landmark Water Conservation Act of 2009 now requiring that per capita urban water use be reduced by 20 percent by 2020, water suppliers throughout the state are looking for additional ways to achieve water savings; cooperation with wastewater agencies is one such means. Thus, converting to volumetric sewer pricing can save water in addition to providing more equitable wastewater financing.

Moreover, volumetric wastewater pricing benefits wastewater agencies by reducing flows, which can:

- Help to preserve wastewater treatment capacity, and thereby postpone or eliminate the need for costly additional treatment plants.
- Reduce operating costs.
- Reduce sewer overflows, which endanger public health and the environment.

THE WATER SAVINGS FROM VOLUMETRIC WASTEWATER PRICING ARE QUANTIFIABLE AND SUBSTANTIAL

A recent study by A&N Technical Services commissioned by NRDC quantifies the effect of shifting residential sewer service billing in California, from collections based on flat charges to a billing system based on the volume of water consumption.¹ The analysis uses statewide water and wastewater data compiled by the State Water Resources Control Board (SWRCB) and the California Department of Water Resources (DWR), as well as price elasticity estimates from the literature on the topic. The potable water savings from switching to volumetric wastewater pricing are quantifiable, and the savings are impressive.

Converting residential customers to volumetric wastewater pricing can save California approximately 141,000 acre-feet per year (AFY) in the short term (a one to four year period), and over 283,000 AFY in the long term (over a 10 to 20 year period; see Table 1). An acre-foot of water is enough to supply up to eight individuals—one to two families—in California for a year. The savings are more over the long term because demand is more elastic in the long run (customers can replace water-using fixtures with more efficient ones) than in the short run (customers can mainly change their behavior).

The challenges that a wastewater agency might anticipate in converting to volumetric pricing can be addressed with a modest investment of time and effort.

IMPLEMENTATION CHALLENGES CAN BE OVERCOME

Cities across California, including Los Angeles, San Diego, Long Beach, and San Luis Obispo, and across the country, including New York, Boston, Atlanta, Houston, Philadelphia, and Seattle, already use volumetric wastewater pricing. Momentum is building in other areas to convert—for one thing, the California Urban Water Conservation Council’s best management practices require signatories that provide both water and wastewater service to adopt volumetric sewer rates.⁴ Second, the rising cost of providing wastewater service has encouraged consumers to ask for volumetric rates, which are more equitable and affordable for conserving customers.

The challenges that a wastewater agency might anticipate in converting to volumetric pricing can be addressed with a modest investment of time and effort. Separate sewer meters are not necessary. Residential customers with volumetric sewer rates are typically billed for sewer service based on the amount of water use recorded by the water meter serving the home. This method uses a meter reading for the winter months (when outdoor use is at its lowest) as a basis for the amount of water that enters the sewer system from the home throughout the year.

Table 1: Estimate of the Statewide Volume of Price-Induced Water Conservation from Volumetric Sewer Pricing by the California Department of Water Resources Hydrologic Region, Expressed in Acre-Feet per Year.²

Hydrologic Region	Total Estimated Residential Use (AFY)	Short Run Water Savings (AFY)	Long Run Water Savings (AFY)
North Coast	22,335	715	1,429
San Francisco Bay	782,250	25,025	50,051
Central Coast	123,283	3,944	7,888
South Coast	2,173,581	69,536	139,073
Sacramento River	588,625	18,831	37,662
San Joaquin River	180,141	5,763	11,526
Tulare Lake	516,986	16,539	33,078
North Lahontan	1,770	57	113
South Lahontan	9,753	312	624
Colorado River	29,331	938	1,877
California (Total)	4,428,055	~141,700	~283,400

AFY= Acre-feet per year

The savings can also be expressed as gallons per capita per day (GPCD). For California as a whole, simply converting to volumetric wastewater pricing could save four GPCD in the short run and seven GPCD in the long run. Thus, the timely adoption of this one simple measure would contribute 10 percent of the 38 GPCD water savings needed by 2020 for the state to comply with the Water Conservation Act of 2009, counting the short-run savings alone.³



Customers will see additional utility bill savings from high efficiency products when volumetric wastewater billing is adopted.



Volumetric pricing for residential sewer service can be accomplished by using the customer's existing water meter.

The water savings resulting from volumetric wastewater pricing will benefit wastewater agencies by reducing operating costs, helping to preserve wastewater treatment capacity, and helping to reduce sewer overflows.

Wastewater agencies will collect customer water use data from water suppliers with whom they have common residential customers. Data-sharing is already in place between many water and wastewater agencies for the large commercial and industrial customers that they have in common. Further, wastewater agencies can continue to use a combination of fixed charges and variable charges in order to ensure a stable revenue stream. Using winter usage for billing purposes year-round will also help maintain stable revenues for wastewater agencies.

Explaining the new rate structure to the community will be a particularly important aspect of conversion. Agencies that have successfully converted undertook community outreach and public hearings to ensure that their customers understood the benefits of converting; namely, that customers would be much more in control of their rates based on their own water usage. While this initial public outreach and billing system change can take some time and effort, administering the new rate structure is comparatively routine.

These and other issues are discussed further in *Volumetric Wastewater Pricing Frequently Asked Questions*, available on NRDC's web site.⁵

CONCLUSION

The water savings resulting from volumetric wastewater pricing will benefit wastewater agencies by reducing operating costs, helping to preserve wastewater treatment capacity, and helping to reduce sewer overflows. If done correctly, the pricing of water and wastewater service can be a powerful signal to consumers about the cost of water and wastewater infrastructure, and the scarcity of water resources. Converting to volumetric wastewater pricing is an efficient, relatively low-cost way of saving California billions of gallons of water each year, saving money for water suppliers, wastewater treatment agencies, and the customers they both serve.

¹ Chesnutt TW. *Volumetric Pricing for Sanitary Sewer Service in the State of California*. Encinitas, CA; A & N Technical Services, 2011. http://docs.nrdc.org/water/files/wat_11121301a.pdf.

² Modified from Chesnutt, note 1.

³ Statistics in Canada reveal an even more dramatic water conservation response when pricing is converted from a flat rate structure to a volumetric structure. Consumption there is 70 to 80% lower nationally under volumetric rates than flat rates. Source: 2008 Municipal Water Pricing: 2004 Statistics, p. 8. Gatineau, QC; Environment Canada: 2008. ec.gc.ca/Publications/default.asp?lang=En&xml=0B6E24B6-0421-4170-9FCF-9A7BC4522C54.

⁴ California Urban Water Conservation Council. *Memorandum of Understanding Regarding Urban Water Conservation in California*; [see BMP 1.4, Retail Conservation Pricing, Part II-Retail Wastewater Rates]. Sacramento, CA; California Urban Water Conservation Council, 2010.

⁵ Natural Resources Defense Council. *Volumetric Wastewater Pricing: Frequently Asked Questions*. New York, NY; Natural Resources Defense Council: 2011. <http://www.nrdc.org/water/volumetric-pricing.asp>.