The Price of Water 2011: Prices Rise an Average of 9 Percent in Major U.S. Cities

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Because of costlier inputs and infrastructure replacement, rate experts predict prices will only go higher.

By Brett Walton
Circle of Blue

In the last year, the price of water in 30 U.S. metropolitan areas has increased an average of 9.4 percent for residential customers with medium consumption levels, according to data collected by Circle of Blue. The median increase for medium consumption was 8.6 percent. Water rates for high-volume consumers have increased slightly more than rates for lower consumption—an indication that utilities may be attempting to curb water use by charging higher marginal rates.

The annual survey, which Circle of Blue first conducted in April 2010, charts what residents pay per month for water in the 20 largest U.S. cities, as well as 10 regionally representative cities.*

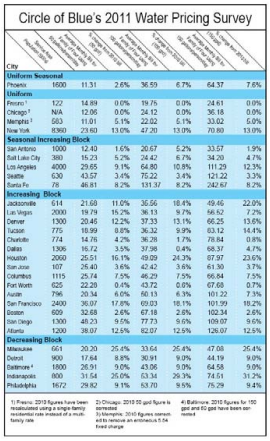
Monthly water bills were calculated for a family of four at three consumption levels:

- Low: 50 gallons per person per day (6,000 total gallons per month)
- Medium: 100 gallons per person per day (12,000 total gallons per month)
- High: 150 gallons per person per day (18,000 total gallons per month)

Since the prices depend on cost-of-service factors and revenue decisions unique to each utility, comparisons between cities are somewhat difficult at first glance. However, the broader trend is unmistakable: the price of water is going up.

Over the last year, the largest relative rate increases occurred in Indianapolis (29.3 percent increase at medium consumption), Milwaukee (25.4 percent), and Houston (24.3 percent).

Full Survey Graphics


Circle of Blue's 2011 Water Pricing Survey

City							
Uniform Seasonal							
Phoenix	1600	11.31	2.6%	36.59	6.7%	64.37	7.6%
Uniform							
Fresno [1]	122	14.89	0.0%	19.76	0.0%	24.61	0.0%
Chicago [2]	N/A	12.06	0.0%	24.12	0.0%	36.18	0.0%
Memphis [3]	583	11.01	5.1%	22.02	5.1%	33.02	5.0%
New York	8360	23.60	13.0%	47.20	13.0%	70.80	13.0%
Seasonal Increasing Block							
San Antonio	1000	12.40	1.6%	20.67	5.2%	33.57	1.9%
Salt Lake City	380	15.23	5.2%	24.42	6.7%	34.20	4.7%
Los Angeles	4000	29.65	9.1%	64.80	10.9%	111.29	12.3%
Seattle	630	43.57	3.4%	75.22	3.4%	121.22	3.3%
Santa Fe	76	46.81	8.2%	131.37	8.2%	242.67	8.2%
Increasing Block							
Jacksonville	614	21.68	11.0%	35.56	18.4%	49.46	22.0%
Las Vegas	2000	19.79	15.7%	36.13	9.7%	56.52	7.2%
Denver	1300	20.46	12.2%	37.33	13.1%	66.25	13.6%
Tucson	775	16.99	8.8%	36.32	9.9%	63.12	14.4%
Charlotte	774	14.76	4.2%	36.29	1.7%	78.84	0.8%
Dallas	1306	16.72	3.5%	37.98	0.4%	68.37	4.7%
Houston	2060	25.51	16.1%	49.09	24.3%	67.97	23.6%
San Jose	107	25.40	3.6%	42.42	3.6%	61.30	3.7%
Columbus	1115	25.74	7.5%	46.29	7.5%	66.84	7.5%
Fort Worth	625	22.28	0.4%	43.72	0.6%	67.68	0.7%
Austin	796	20.34	6.0%	60.13	6.3%	101.22	7.3%
San Francisco	2400	36.07	17.8%	69.03	16.1%	101.99	16.2%
Boston	609	32.68	2.6%	67.18	2.6%	102.34	2.6%
San Diego	1300	48.23	9.5%	77.73	9.6%	109.97	9.6%
Atlanta	1200	38.07	12.5%	82.07	12.5%	126.07	12.5%
Decreasing Block							
Milwaukee	661	20.20	25.4%	33.64	25.4%	47.08	25.4%
Detroit	900	17.64	8.8%	30.91	9.0%	44.19	9.0%
Baltimore [4]	1800	26.91	9.0%	43.06	9.0%	64.58	9.0%
Indianapolis	800	31.64	25.0%	53.34	29.3%	74.51	31.2%
Philadelphia	1672	29.82	9.1%	53.70	9.5%	75.29	9.4%

1) Fresno: 2010 figures have been recalculated using a single-family residential rate instead of a multi-family rate
2) Chicago: 2010 60 gpd figure is corrected
3) Memphis: 2010 figures remain valid to reduce an erroneous 5.0¢ fixed charge
4) Baltimore: 2010 figures for 100 gpd and 60 gpd have been corrected

View data: JPG image, Adobe PDF

Water prices in two cities—Fresno and Chicago—have not changed since last April. Both cities, however, have already seen their fair share of rate hikes in recent years. From 2007 to 2010, the cost of water doubled in Fresno, while prices increased by half in Chicago.

Where the Money Goes: System Improvements

Starting in Yosemite National Park's Hetch Hetchy Valley, San Francisco's century-old water supply system crosses over or near three fault lines in its 269-kilometer (167-mile) path to the Bay Area, where it provides water for 2.5 million people.

To protect this vital infrastructure from earthquakes, San Francisco voters approved a $US 4.6 billion bond measure in 2002 for seismic upgrades and reliability improvements. Scheduled to be completed in 2015, more than 80 projects will overhaul nearly every system component: pipelines, dams, pumping stations, reservoirs, tunnels, and storage tanks.

Residents should get used to water rate increases, says rate consultant Scott Rubin, who doesn't see an end to rising prices. Rubin has more than 20 years of experience working with water rate design and has written studies for the National Regulatory Research Institute.

"Every trend I look at tells me that it's likely water costs will increase more than the rate of inflation," Rubin told Circle of Blue.

Reasons for Increase

Prices are increasing because operational inputs such as chemicals, energy, labor, and water itself are getting more expensive. That is the case in Phoenix, where over the last decade chemical costs per million gallons of treated water have increased by 493 percent, electricity costs by 68

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At the same time, the city's water rates have increased to fund the projects. Since April 2010, prices have risen 18 percent.

percent, and raw-water costs by 41 percent.

The size of the increase in each of these input categories depends on local factors, such as source-water quality and electricity prices. If water quality is poor, more treatment (and thus more chemicals and energy) will be necessary; if a utility has to pump water from greater depths as aquifers decline or to greater heights, as is the case in the 915-meter (3,000-foot) lift for the Central Arizona Project, energy costs will be greater.

Cities that buy water from regional wholesale suppliers are also paying a premium. San Diego, which imports 90 percent of its water, is one example. The city is paying 66 percent more for untreated water than it did in 2006, largely because prolonged drought has reduced deliveries of cheap water from the Colorado River. This means that cities are leasing water from farmers at greater expense.

Additionally, Circle of Blue reported in October on potential pollution-control regulations for coal-fired power plants that could, within the next few years, raise energy prices and water prices in Arizona, Nevada, and southern California. More stringent water quality regulations—such as tighter controls on arsenic in drinking water—also come with added costs. The arsenic rule, which the Environmental Protection Agency finalized in 2006, forced many utilities to double rates, according to *Greenwire*.

In addition to higher operating costs, decrepit infrastructure is forcing cities to invest in costly capital-replacement projects. In older cities, Rubin told Circle of Blue, many pipes were laid more than 100 years ago and are reaching the end of their designed life. Furthermore, system expansions that took place during the 1940s and 1950s often used inferior materials because the majority of supplies had been used in fighting World War II.

The result is that, due to corrosion, piped systems are not lasting as long as they were expected to, and many need to be replaced. The cost of not doing so could be frequent water main breaks and flooded homes, streets, and businesses, especially in cities where cold winters are an added stressor. Some cities—like Baltimore, which has had 5,762 water main breaks in the past five years—are already suffering this fate.

The scale of America's hidden, underground web keeps maintenance workers busy. Houston's water supply network includes 12,000 kilometers (7,500 miles) of pipes, and the city replaces up to two percent (240 kilomters, 150 miles) of its water lines per year, said public information officer Alvin Wright.

Despite Cuts, No End In Sight?

To keep rate increases minimal, deflect public ire, and meet the standards set by regulatory boards, utilities have been streamlining daily operations, merging departments, and cutting staff.

Phoenix, for instance, cut the operating budget for its water services department by $US 10 million. The city did so by furloughing employees and eliminating a quarter of management positions. Milwaukee Water Works cut its full-time staff by 17 percent between 2000 and 2009, and the city has stopped replacing non-critical staff members who retire.

Yet, even trimming bureaucratic fat can't overcome rising input costs and the long-term pressures of maintaining a system that is reliant on so much hardware.

"Efficiency will help systems avoid some variable costs of production in the short run and capacity costs in the long run," Jan Beecher, director of Michigan State University's Institute of Public Utilities, wrote in an email to Circle of Blue. "But people will need to get used to higher rates for water that reflect the true cost of service."

Where the Money Goes: Metering

You can't manage what you don't measure, goes the business maxim. But, just as vital for the balance sheet, you can't properly charge for what you don't measure, either. So, many cities are installing water meters with so-called "smart" technology to better monitor use.

To be certain, water meters are not a shiny, new thing. They are commonplace in most cities and have been for some time: Portland—Oregon's largest city—has had full coverage since 1927. Yet, penetration has been slower in older cities and in places with abundant water. In Chicago, some 71 percent of residential customers pay for water based on the width of their building or the size of their lot, not on how much they actually use.

As demand management and cost-efficiency become more essential, cities both large and small are beginning capital programs to add meters where there are none or to replace older, dated technology. The hope is that smart meters will reduce the cost of metering and billing, improve billing accuracy, provide quicker leak detection, and help customers reduce water use. The new meters can transmit data several times a day—hourly updates that reveal a much finer grain than the monthly manual meter readings.

A 2010 study by Oracle, an information technology company, found that one-third of the 300 U.S. water utility managers surveyed were considering or already implementing smart metering technology. Phoenix, Cleveland, Houston, Durham, and Ann Arbor are just a few of hundreds of cities that have initiated smart meter programs in the last few years.

Perhaps the largest municipality to adopt Metering 2.0 is New York City, where the Department of Environmental Protection is more than halfway toward a goal of installing radio transmitters on all 835,000 metered connections in its service area. Whereas most smart meters feed data to a computer in a car driven down the street, New York City's system will transmit wirelessly to the utility's headquarters via rooftop receivers. The $US 252 million program will be completed this year and is being paid for with water rate increases.

For Fresno, not only is the technology new, but the meter locations are too. Last year the Fresno water department began an $US 80 million program to install 110,000 meters—many in houses that never before had one. The city is following an order from the U.S. Bureau of Reclamation to meter all connections by 2013. If it does not comply, Fresno will lose rights to water deliveries from the federally administered Central Valley Project.

Other California cities are installing meters in accordance with a 2005 state law, AB 2572, requiring full-metering by 2025. The law ensures that, while the Golden State may be nearly broke, it will no longer want for municipal water data.

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**Note: The first water price survey, published by Circle of Blue in April 2010, used population figures from the 2000 Census, while the 2011 survey used 2010 Census data. Although Baltimore has dropped out of the 20 largest cities over the last decade, the city remains in the water rate index for consistency.*

Circle of Blue gathered water rate information from the website of each city's water utility or from the utilities themselves. Prices are based on single-family residential rates and are current as of April 1, 2011. Average monthly prices for cities with seasonal rates were calculated using seasonal weighting.

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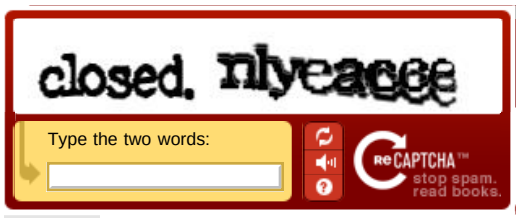

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