

Water Pricing in Two Thirsty Cities: In One, Guzzlers Pay More, and Use Less

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Two Kinds of Water Bill: Flat Rate or Tiered

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CreditMax Whittaker for The New York Times

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FRESNO, Calif. — When residents of this parched California city opened their water bills for April, they got what Mayor Ashley Swearingin called “a shock to the system.”

The city had imposed a long-delayed, modest rate increase — less than the cost of one medium latte from Starbucks for the typical household, and still leaving the price of water in Fresno among the lowest across the entire Western

United States. But it was more than enough to risk what the mayor bluntly admits could be political suicide.

“It wasn’t that long ago,” Ms. Swearingin said, “that people here were fighting the installation of water meters.”

Nearly 15 years ago and 1,000 miles away in Santa Fe, N.M., officials faced a similarly dire predicament when a drought came within a few thousand gallons of leaving the city without enough water to fight fires. But Santa Fe’s response was far more audacious.

Santa Fe, in addition to raising the basic cost of water, decided to make the heaviest users of water pay more — much more — for the water they consumed.

Known as tiered pricing, the system wasn’t new or unique to Santa Fe, but in no major city today are the tiers so steep, with water guzzlers paying three to four times more per gallon than more efficient consumers are charged.

“It was a big wake-up call,” said Rick Carpenter, manager of water resources and conservation for Santa Fe. “There was some opposition, and it could easily have gone the other way. But the majority saw we needed to band together on this one.”

In moving away from the idea that water should be cheap for everybody just because it is so essential to life, Santa Fe’s approach to water pricing offers lessons in how other parched cities can balance the societal costs of scarcer, more expensive water in a relatively equitable way.

Because of the huge gap between tiers, the biggest consumers effectively subsidize everyone else, shielding poorer residents from feeling the full brunt of rate increases.

“So much turns on pricing when it comes to water,” said Robert Glennon, a professor at the Rogers College of Law at the University of Arizona and the author of “Unquenchable: America’s Water Crisis and What to Do About It,” a 2009 book on water policy.

“The beauty of tiered pricing is that it doesn’t prevent people from using water, and it doesn’t rely on government regulations,” Mr. Glennon added. “But it insists you pay more for extra water for your lawn than for basic human needs.”

The tiered approach has worked as intended. Since 2001, Santa Fe’s total water consumption has dropped by a fifth, even as the high desert city’s population has increased more than 10 percent. When water costs more as its consumption increases, people respond exactly as an economics textbook would dictate: They use less.

Santa Fe has the most expensive water out of 30 American cities surveyed by Circle of Blue, a nonprofit news agency that focuses on water policy, and the city’s residents are among the thriftiest when it comes to turning on the tap. In Santa Fe per-capita water usage has plunged, falling from nearly 140 gallons a day in 2001 to about 100 now.

By contrast, in Fresno, which has a single, uniform price for water, per-capita usage was 222 gallons per day last year, after falling from even higher levels because of a variety of conservation efforts.

As many as two-thirds of California’s local water departments use some sort of tiered-pricing system, but none have gone as far as Santa Fe. And now the whole idea of relying on prices to help balance supply and demand faces major legal and political obstacles in the state.

Late last month, a California state appellate court panel ruled that a tiered pricing system in Orange County may violate state laws that prohibit local governments from charging more for services than they cost to provide.

The ruling drew fierce criticism from Gov. Jerry Brown, who is ordering Fresno and other California cities to reduce water usage by 25 percent. And the Orange County case, which was sent back to a lower court for further hearing, is one reason Mayor Swearingin says Fresno is not ready for tiered pricing even though, she says, “conceptually, I think

it makes sense.”

Indeed, California may have few viable alternatives. New academic research suggests that a tiered system has a twofold benefit: It uses something akin to market pricing to encourage conservation but makes sure much of that burden is borne by those most able to afford it.

“Tiered pricing offers a balance between fairness and efficiency,” said Kenneth A. Baerenklau, associate professor of environmental economics and policy at the University of California, Riverside.

A 2014 study led by Professor Baerenklau after the 2009 introduction of tiered pricing in Riverside County concluded that the system reduced demand by 10 to 15 percent from what it would otherwise have been under the old uniform price structure.

Using data from the Eastern Municipal Water District of Southern California, the researchers found that although more efficient users reduced consumption by 5 percent, the least efficient consumers cut back by 25 percent.

“If you price somebody out of the market for water, you have a big problem,” said Professor Baerenklau. “Tiered pricing impinges on the users that have the most slack.”

The first tier in Santa Fe — \$6.06 per thousand gallons a month for up to 7,000 gallons (10,000 in the summer months) — is aimed at covering basic needs like water for drinking, bathing, washing dishes and doing the laundry.

Under this situation, said Nick Schiavo, Santa Fe’s director of public utilities and water, a family of four might use about 220 gallons per day, or 6,600 gallons per month, which adds up to about \$40 per month.

“You can’t drink that much water or run your dishwasher or shower that much,” Mr. Schiavo said. Using substantially more than that means households are watering the lawn, or “irrigating” in water-department speak.

“We don’t do anything draconian,” he added. “For some people, a lawn is important, and if they want to spend their money on irrigation, they can.”

Anyone who really wants to maintain a lush green lawn or a deep swimming pool in Santa Fe’s desert landscape and brown adobe-style architecture has the option of paying \$21.72 for each additional 1,000 gallons above the base threshold.

Santa Fe also employs some additional carrots and sticks to encourage conservation.

Chief among the deterrents is the utility department’s practice of making public the names and addresses of the city’s top 10 water users, both residential and commercial, with local newspapers then spotlighting the guzzlers. Faced with this public shaming, most blame leaks they claim were quickly corrected.

As for carrots, residents who buy low-water washing machines get a \$200 credit on their water bills. Further, the city will soon begin installing \$5 million worth of smart water meters that can alert consumers via text message when they are about to hit the more expensive tier.

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The Parched West

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Then there was what Mr. Schiavo refers to as the “great toilet retrofit.” As part of the permitting process to construct new housing developments, builders received credits that were then used by plumbers to install free low-flow toilets in existing homes across Santa Fe. From 2002 to 2010, more than 8,000 new toilets were installed.

“It comes down to three things,” Mr. Carpenter said. “The tiers are a big incentive, but so is a successful rebate program and the fact that people believe in conservation here. They appreciate that water is a finite resource.”

Using funds generated by the higher water rates, as well as from a big bond offering, Santa Fe has also revamped its water system to rely less on its overstressed aquifer.

A new \$220 million water treatment project is enabling the city to get more than 75 percent of its water from surface sources like rivers and reservoirs. That is a complete reversal from the situation a decade ago, when heavy pumping from city wells caused the water table to plunge and fissures to open up in some places as the ground subsided.

It’s a different story in Fresno, said Thomas C. Esqueda, director of the city’s Department of Public Utilities. Born in Fresno, Mr. Esqueda studied engineering in San Jose and served as director of environmental services for the city of Raleigh, N.C., before returning to Fresno last June.

“I feel like I’m in an alternate universe,” Mr. Esqueda said, sitting in his beige office, surrounded by maps showing the irrigation districts of California’s Central Valley, along with the city wells that currently supply 80 percent of the water for Fresno’s half-million inhabitants. “Anywhere else, people would be concerned.”

As was the case in Santa Fe not too long ago, the water table in Fresno is plunging. It has fallen 25 feet in some places in the last seven years, forcing the city to shutter shallower wells. New state regulations on contaminants are likely to shut down dozens of other wells later this year or early next year.

Two years ago, Fresno officials voted to raise the uniform water rate of 82 cents per 1,000 gallons — far below even Santa Fe’s lowest tier — to help pay for a new \$429 million project that would make use of river water and let the aquifer recover. But the increase was called off after a political uproar and threats of court action.

A scaled-back version of the project was eventually approved earlier this year, prompting April’s rate increase to \$1.27, but work on a new treatment plant isn’t scheduled to start until this fall, and it won’t be in operation until late 2018. “The water plant should be under construction now,” Mr. Esqueda said.

To help bridge that gap, as well as meet Governor Brown’s mandatory reduction in consumption, Mr. Esqueda’s department, for the first time, is closely analyzing house-by-house water usage. A map divided into pink and blue dots shows where residents are watering their lawns more than twice a week, the legal maximum.

Mr. Esqueda points to big pink blotches in northeast Fresno, an area that includes some of the city’s most affluent neighborhoods. A typical homeowner might use 12,000 or 13,000 gallons a month, but monthly demand here can reach 50,000 gallons for some properties.

Out of 112,000 residential customers, he estimates the 3,000 pink households that are watering their lawns more than twice a week consume 17 million gallons on any given day, or about 20 percent of the city’s total water consumption.

A stroll down East Shepherd Avenue reveals sprawling mansions with impossibly green lawns, fringed with koi ponds, Japanese maples and roses.

Ron and Donna Fena, who have a swimming pool as well as a koi pond in their backyard, say they used only 14,000 gallons last month and are following the guidelines on weekly watering, but they say that’s beside the point.

“People are focusing too much on lawns,” Ms. Fena said. “There is still a lot of water around.”

She complained that half of California’s surface water goes to keeping rivers flowing and other environmental needs,

like sustaining fisheries and also preventing endangered species like the delta smelt from becoming extinct.

“I like fish, but I’m not giving up my lawn for some smelt,” Ms. Fena said, only half-joking. “Let those fish die up north. There’s a cycle of life.”

Tiered pricing would force people to reconsider their habits, Mr. Esqueda said, but Fresno, he argued, can only move “one step at a time.”

In late April, his department sent out cards to 3,000 suspected guzzlers, gently suggesting “that you may have a leak on your property or your irrigation system timer may require adjusting.”

Even if violators are eventually charged, the utility department is permitted to issue no more than four \$45 fines over two years. “We have to change the economics so the fines aren’t affordable,” Mr. Esqueda said.

In the meantime, he’s praying for a deluge. “Hopefully, we will have some normal wet years,” Mr. Esqueda said with a deep sigh. “I’m a spiritual person and I do pray for rain. I come to work and say it’s a beautiful day, but I can’t enjoy it. It’s not raining.”