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Pricing water to encourage conservation

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Two recent Daily Law Bulletin articles have developed the concept that water is a scarce natural resource even in the Midwest and Chicago, where proximity to the Great Lakes suggests otherwise.

“Are water wars coming?” and “Water conservation and real estate” focused the attention of the legal and real estate community on the fact that water really is a limited resource and that instituting water conservation programs will become both a household and community priority.

Here we review one approach to water conservation that is supported by basic economics: provide financial incentives in the form of increased rates.

High prices or increased rates can provide a powerful financial incentive to use less. When the price of gasoline, natural gas and water increase, consumers have a financial incentive to use less to save money.

When the price of gasoline goes up, people think about taking public transportation instead of driving their car. When the price of natural gas goes up, people can reduce the costs of heating their homes by turning down the thermostat. Studies have shown that when water rates are increased, homeowners use less water.

Thus, it would be reasonable to expect that communities faced with a shortage of water or looking to put in place a conservation program as part of an effort to apply for diversion of water from the Great Lakes under the Great Lakes Compact would simply increase their water rates to encourage residents to conserve water.

While this sounds simple, changing water rates to promote conservation is not the quick and simple solution that one might expect. The unintended conse-

quences of changing water rates to promote conservation are not readily apparent and often require communities to make trade-offs and hard choices. Revising water rates to encourage conservation can be a complex process.

The Environmental Finance Center at University of North Carolina’s School of Government in June 2009 issued a report on designing rate structures to support water system objectives.

Changing water rates to promote conservation is not the quick and simple solution that one might expect that it would be.

The NC Report introduces the concept of water system objectives, which is something that very few water users have ever thought about or even knew existed.

The NC Report was prepared at a time when local governments and community water systems were faced with the need to comply with a state law, known as the 2008 Drought Bill, which required the adoption of “full cost pricing” for their water in advance of applying for loans and grants for capital improvements.

Full cost pricing requires users to pay water rates that cover operating expenses, maintenance costs, and principal and interest on system debt. In addition to these items, the report indicated that monies should also be put into reserve accounts for future capital replacements.

If water system revenues are insufficient to cover these items, then it is time for the system to review its rate structure and raise its rates. While the NC Report focuses on water rates within North Carolina, much of what it has to say applies to water rates across the nation.

Water system rate structures are not all the same. Systems can use flat or uniform rates, increasing block rates, decreasing block rates or seasonal rates.

Under a decreasing block rate, as usage goes up, the price per unit goes down. Under an increasing block rate, as usage

goes up, the price per unit also goes up. Seasonal rates increase in the summer months when residents’ water usage is expected to increase due to watering lawns and gardens.

Both increasing block rates and seasonal rates provide users with incentives to save money by using less water. However, the conservation incentive inherent in both of these rate structures, which enables water users to save money, also can result in a decrease of the revenues received by the water system. As usage goes down, system revenues also can go down. While system customers save money, the water system’s revenue may decrease to the point where the system fails to cover operating expenses.

The problem of generating sufficient revenue to cover operating expenses can be solved by adding a “base charge,” or minimum charge, to the water rate structure to assure that the water system has stable revenues that are sufficient to cover system operating costs. However, finding the “right” base charge can be a challenge.

If the base charge is too high, customers who reduce water consumption may not see much of a decrease in their water bills and thereby see no financial reward for their efforts. While a higher base rate will buffer a water system from dramatic swings in system revenues, it is also necessary to achieve a balance between ensuring stable revenues for the water system and providing a financial incentive for its customers to conserve water.

In order for water rates to provide users with financial incentives to conserve water, the customer and the water user must be the same.

The owner of a single family home with a large yard with a sprinkling system knows what it costs to keep that lawn green when the summer period water bill comes in. Ever-increasing monthly or quarterly water bills provide homeowners with incentives to replace old toilets and washing machines with new units that use less water. The same financial incentive encourages homeowners to replace old air-conditioning systems that cool with water.

Residents of apartment buildings and

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condominium unit owners receive no direct incentive from water rates designed to encourage conservation because their water usage is rarely separately metered and billed. Without having separate water meters and receiving separate water bills, these water users have no way of knowing just how much water they are actually

using. The water they use is included in the water bills sent to their condominium association or landlord, based on the water used by everyone in that building.

For these users, the financial incentive to conserve water is not there. Getting these users to conserve water is a big challenge for HOAs, condominium associations

and landlords. It is not that different from the challenge faced by building owners and developers who want to institute sustainability programs for their properties. Instituting programs is the easy part. Getting tenants to see the value in such programs is the challenge that the real estate community faces.