

## WATER VALUATION AND UTILITY RATES

*Professor Amy Hardberger*<sup>†</sup>

As I've worked on this topic, it really has evolved. I was thrown into land use, but land use opened my eyes to new water tools. Nationwide there is a shift towards conservation of water and water sustainability. Land use might be the "ace-in-the-hole," not the simple act of turning the water off when you brush your teeth—even though I want you to do that.

What's important when talking about how we are going to survive, is "where are we going?" Because cities are so overpopulated, we are moving out of rural areas and into cities. This has caught the interest of the Water Development Board because water usage is only going up. Overall, nobody will need less water in the future. This doesn't mean there aren't levers we can pull to make new individual users use water in a new way. As we move towards urban areas, we get into this "tug of war." City residents along with the Oil & Gas and Agricultural industries all share water and have to figure out how to share. The key is how to share effectively.

There is an intrinsic value of water. We have included a set of intrinsic values in our water law system that reflect the output we want those laws to have. What is the purpose of water law? A lot of people think it's meant to protect water resources. But it isn't. Our love of property and notion of "property rights" is undermined by not protecting the very thing the right is in. We have created a valuation in water rights and a higher valuation for those who have held them longer.

We've also created value in things called "beneficial use." This is largely based on our changing societal values. What is a good way to use water? Discussions within communities on water are not getting us where we need to go. Water is causing trouble in a lot of places; it's no longer just the western part of our nation. The East Coast is now recognizing some of the same issues many have been grappling with for a long time.

As a society, we've put a price on water. Everybody in here probably pays a water bill. This is a photograph of my water bill. When we think about this goal we all share: we want to be able to live in nice places with water; don't want to run out of water; and want to be able to afford water. How we get to this goal can be different. We have the ability to use the market in our favor. Some think water should not be used in the market because this is a fundamental human right. But for

---

<sup>†</sup> Professor Amy Hardberger is an Associate Dean and Professor of Law at St. Mary's University School of Law in San Antonio, Texas. Professor Hardberger teaches courses on environmental law, land-use planning, property law, water law, and policy. Professor Hardberger is also a registered Texas Professional Geoscientist.

the most part, that train has already left the station. Your utility bill is already here. Why not think about the ways in which we can use the markets to achieve our eventual goal?

This is a basic Supply and Demand model. The more there is of something, the price goes up relative to demand. When there is a lot of something, the price goes down. The problem is when we apply this to water, we have some really bad, unintended consequences.

We pay for our demands on whatever luxury item. We pay a lot for things like diamonds, Rolexes, Land Rovers, etc. From a price standpoint, we will pay a lot for that so it has a high price, but it doesn't necessarily have a high value in your life. Conversely we have things like water, which is very important in our life, but we pay considerably less for water. Water has a high value in life and we barely pay anything. Bottled water increases value through convenience and therefore raises the price of water.

When is it that water finally gets a price that matches its value? When we run out. A city project's water usage based on household and how many people are going to live there. They look at how much water they have and find the "runout line." The cheap water is almost completely gone. The utility then thinks about how to get more water. These projects can be extremely expensive and we pass the cost to the consumer, basically sending the signal that water is valuable. Thus, people use less water. This is the opposite of how we want the market to work to maintain sustainability. We need to figure out how to be proactive rather than reactive. We do not want cities to run out of money trying to implement these projects. How can we message that water is very valuable without raising the price of water?

One of the biggest challenges for utility providers is massive revenue instability. In 2011, the whole state of Texas was on fire. Usually, at that moment of such an extreme scenario, the city comes in and says that everyone needs to start using less water, which leads to a massive revenue decrease. Even worse, no utility knows when a drought is going to come or how long it is going to last. When rates are totally predicated on usage, we have a high level of volatility and instability. It can be scary for providers. It should be scary for us too. We need them to have a good solid business model.

Utility services are bound by a cost-of-use business model. In particular, public utilities are a monopoly. We don't like monopolies because they can go bananas on pricing. As a result, we have the government saying you cannot make more than "X" amount. We collect a certain amount in billings, then figure out how to bill it to the consumer for any shortfall. You can't make an obscene amount of money, but you can make a reasonable amount in return for the investment.

The problem is that the current cost of services plays into the economic problems I previously mentioned. Utilities are almost encour-

aging this increased resource use until there is a downfall. What are some things we can do to fix this cost-of-service business model? There is some variability in what you can include in the price of service. But we need to somehow find a value for our existing water. We need to understand demand, and ask “how much are we really going to need in the future?” Notice the variation, there is not one demand curve. Demand is predicated on how you and I behave. The best thing to do is to determine how we will use water in the future. How do we build in these adjustments so we aren’t just using mathematics to solve the problem? We need real conversation on this issue and a more proactive approach to controlling water usage.

You can’t see what this [slide] is exactly, but it is an example of how demand is different for different scenarios and situations. Essentially, the demand curve is dictated by behavior, and we have proof that the demand is variable. For example, the decade of housing stock that used the most water was the 1990’s. Things like lot size, house size, and occupants are actually much more useful to an analysis. This [slide] captures the power of land use over water use.

We know how to target demand—and there are many ways to target it. One way to adjust revenue instability is to reduce the elastic use of water. Discretionary use is huge and can minimize the bouncing usage rates the utility has. Reducing elastic use means less instability. The biggest way we can adjust the elastic use is by controlling outdoor discretionary use, and of course there is the pricing piece.

What are some ways we can encourage conservation of water in our pricing? One way is by using a block billing system. The more you use in these concentric blocks, you are getting penalized for using large amounts of water. The problem is that these are extremely unpredictable. The utility doesn’t know what is going to come in each month. Some people advocate that water should be free, but that you should penalize high water use. That is very scary for utilities for the same reason.

Another method is by increasing fixed fees. Some can be passed along as a flat fee cost. Utilities don’t want to do it too much because you lose the ability for consumers to see what they’re actually using. And, like block billing, it can be extremely unpredictable to know what the total usage is going to be from month to month. You can also implement a drought surcharge, it’s something like a gas surcharge in that it sends an immediate price signal to reduce your water usage because we don’t have that much left.

No matter what we do, we must build in some protection for low-income users. A lot of economists feel that the current billing systems are a terrible way to do things and we must do more things to help low-income needs. I agree with this but in the interim we cannot cut off water for those who cannot afford it now that the price has gotten too high.

This concludes my presentation. If there are any questions, I'd be happy to take them now or here's my email and twitter handle if you want to reach out to me after the Symposium. Thank you very much for your time today.