Designing Water Rate Structures for Conservation & Revenue Stability

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Purpose of Today’s Webinar

- Introduction to report
- Background
- Review options and considerations for conservation and revenue stability
- Opportunity for feedback
Outline for Today’s Webinar

• Background on the EFC
• Background on the topic
• Relationship between water pricing and water demand in Texas
• Relationship between water pricing and revenues in Texas
• Recommendations and considerations for designing water rate structures for conservation and revenue stability
Thank you for joining us!
Dedicated to enhancing the ability of governments and other organizations to provide environmental programs and services in fair, effective, and financially sustainable ways through

- Applied Research
- Teaching
- Program Design and Partnerships

How you pay for it matters.
Audience poll: Overall water use in our service area is....

- Declining – 27%
- Stabilizing – 16%
- Increasing – 57%

*Polling results from 74 audience members*
Audience poll: We want water use in our service to….

- Decline – 49%
- Stabilize – 42%
- Increase – 9%

*Polling results from 76 audience members
Price impacts demand

- Average price?
- Perceived price?
- Marginal price?
- Pricing structure?
- Temporal pricing adjustments?
Average price

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Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.

Data sources: Texas Municipal League’s 2013 water and sewer rates survey (self-reported). Boxes indicate the interquartile range (middle 50%) of charges and water use among the municipalities in each region. The horizontal line inside the boxes indicate the median. The Far West, Lavaca and Plateau regions are excluded due to insufficient number of municipalities with available data.
Temporal pricing adjustments

Changes to Water Prices and Average Household Water Use between 2012 and 2013
Among 512 TX Municipalities

Change in Average Household Water Use from 2012 to 2013

Increase in Water Bill at 5,000 Gallons/Month from 2012 to 2013

Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill. Data sources: Texas Municipal League’s 2012 and 2013 water and sewer rate surveys (self-reported). Out of 512 municipalities, 282 (55%) reported no change in the water bill between 2012 and 2013.
“Marginal price”

Average Household Water Use (Gallons per Month) vs. Increase in Water Bill from 5,000 Gallons/Month to 10,000 Gallons/Month.

Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data sources: Texas Municipal League’s 2013 water and sewer rate surveys (self-reported) for 681 TX municipalities.
The rate: revenue relationship

Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill
Data sources: Texas Municipal League annual TX water and sewer rate surveys (self-reported),
Texas Water Development Board data from audited financial statements of utilities with outstanding loans.
Fixed versus Variable O&M Expenses and Customer Sales Revenues

Striking a Balance

- Revenue Stability/Resiliency
- Economic Development
- Conservation Promotion
- Affordability
No Set Formulas

San Antonio Water System

Austin Water Utility
Recommendations and Considerations for Designing Water Rate Structures for Conservation and Revenue Stability

• Approaches to Ensure a Pricing Signal is Being Sent

• Evaluation of the Pricing Signal and Targeting Specific Types of Water Use

• Complementary Practices for Revenue Stability
Audience Poll: What best represents the block structure of your residential water rates?

- Uniform – same unit price, no matter the consumption – 7%
- Increasing block – increasing unit price at higher levels of consumption – 87%
- Decreasing block – decreasing unit price at high levels of consumption - 0
- Budget-based – individualized rate based on customer characteristics – 2%
- Other – 5%

*Polling results from 60 audience members*
Approaches to Ensure a Pricing Signal is Being Sent

- Use monthly billing period
- Provide price and use information on customers’ bills
- Encourage sub-metering
- Incorporate the costs of water into price setting
- Understand the relative price signal
Approaches to Ensure a Pricing Signal is Being Sent Being Received

- Use monthly billing period
- Provide price and use information on customers’ bills
- Encourage sub-metering
- Incorporate the costs of water into price setting
- Understand the relative price signal
Evaluation of the Pricing Signal at Various Consumption Points and Targeting Specific Types of Water Use

- Consider the average as well as high levels of consumption when setting rates
- Marginal price consideration
- Increasing block rate structures design
- Can use a higher uniform rate structure or a seasonal rate structure
Evaluation of the Pricing Signal at Various Consumption Points and Targeting Specific Types of Water Use

• Set irrigation rates
• Consider drought surcharges
• Don’t use a declining rate structure for residential customers
Complementary Practices for Revenue Stability

- Review rates each year
- Improve accuracy of demand projections
- Consider drought surcharges
Complementary Practices for Revenue Stability

• Rate stabilization fund
• Revenue from high consumption > more vulnerable
• Consider a fixed charge based on consumption
Alternative Rate Designs

- **PeakSet Base Model**: *inspired by the demand ratchet rates of energy utilities*
  - Case study: Consumption-based fixed revenue water rate system in David, California

- **CustomerSelect Model**: *inspired by cell phone plans*

- **WaterWise Dividend Model**: *inspired by retail cooperative organizations*
  - Case study: DC Water

Urban Utility with Relatively Low Costs, High Demand, and Water Supply Challenges
Mid-Size Water System That Purchases Treated Water from Neighboring Utility
Rural Water Utility with Naturally High Costs That Wants to Maintain Affordability
Want more information?

- The report (texaslivingwaters.org)
- The dashboard (efc.sog.unc.edu)
- Post-webinar poll
  - Sign up for EFC blog
  - Sign up for Texas Water Solutions blog
Questions? Comments?

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