# Designing Water Rate Structures for Conservation & Revenue Stability

Mary Tiger
Jeff Hughes
Shadi Eskaf
February 2014

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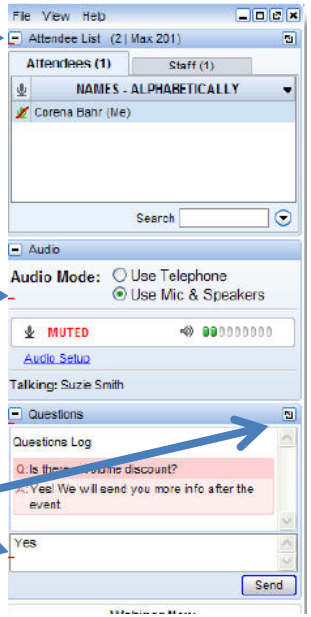


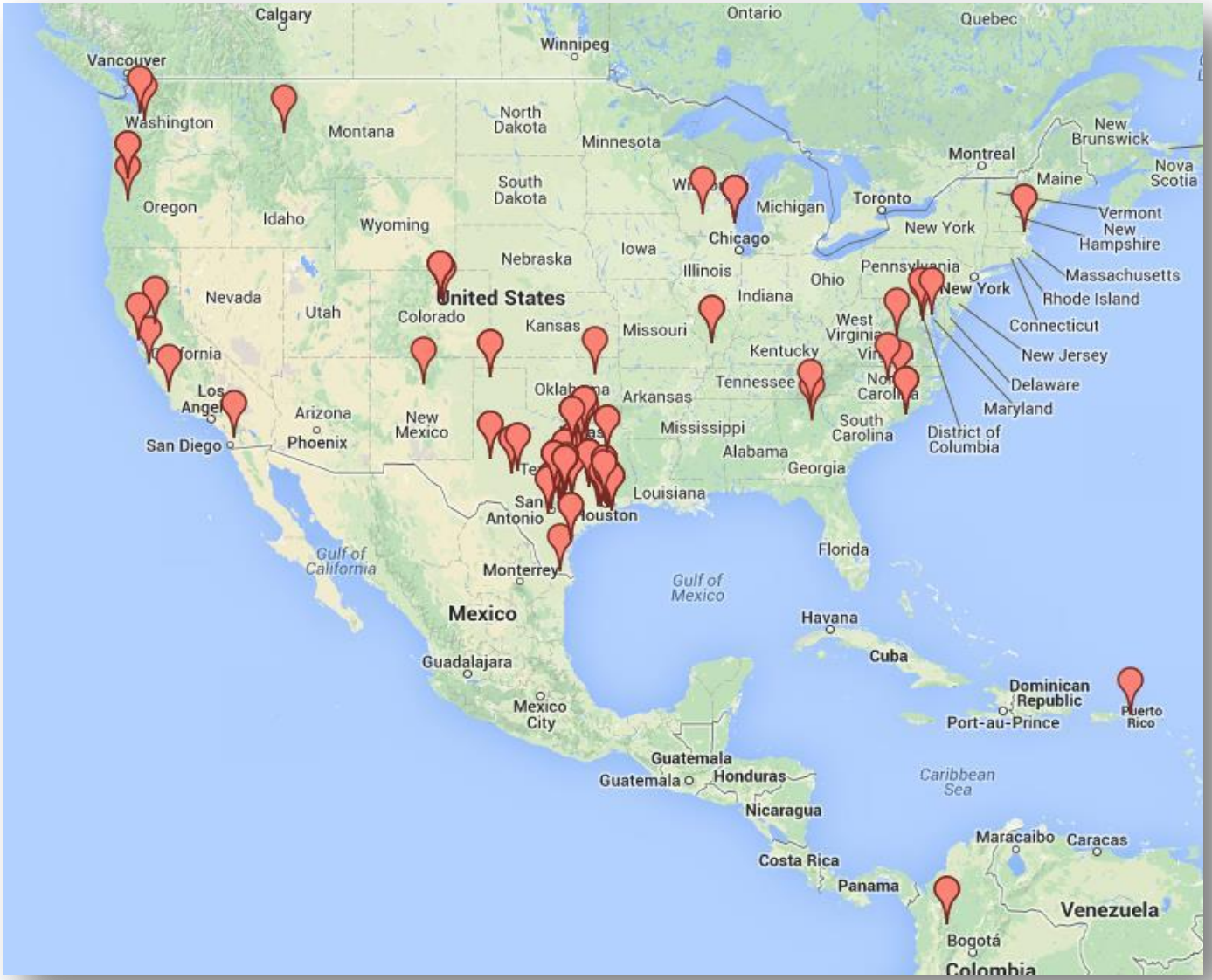
# Purpose of Today's Webinar

- 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!



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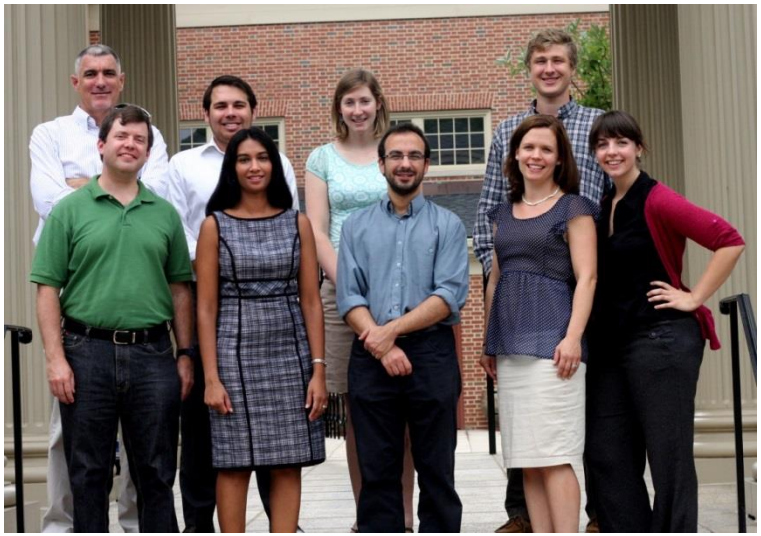
- Applied Research
- Teaching
- Program Design and Partnerships



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*How you pay for it matters.*


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Ceres
ASSESSING WATER SYSTEM REVENUE RISK:
Considerations for Market Analysts
August 2013
Authored by
Jeffrey A. Hughes, University of North Carolina
Sharlene Leurig, Ceres
Designing Water Rate Structures for Conservation & Revenue Stability
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February 2014
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EPA
Defining a Resilient Business Model for Water Utilities
Subject Area: Management and Customer Relations
FORECASTING URBAN WATER DEMAND
American Water Works Association
WATER CONSERVATI
Minimum Flow Levels
M1
American Water Works Association RESEARCH FOUNDATION
Revenue Instability and Conservation Rate Structures
Subject Area:
Water Resources

# 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….

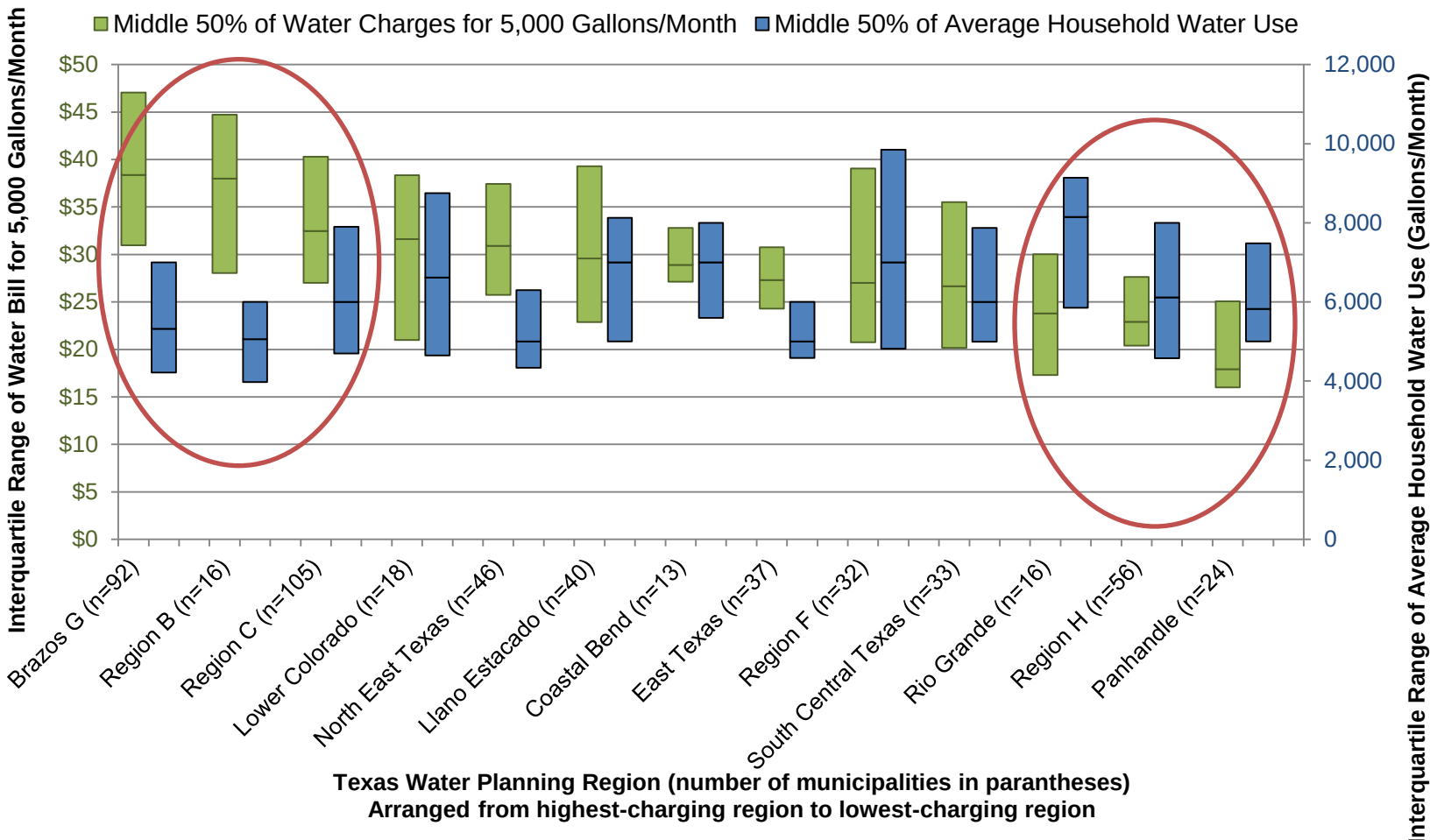
- Decline – 49%
- Stabilize – 42%
- Increase – 9%

*Polling results from 76 audience members

# Price impacts demand

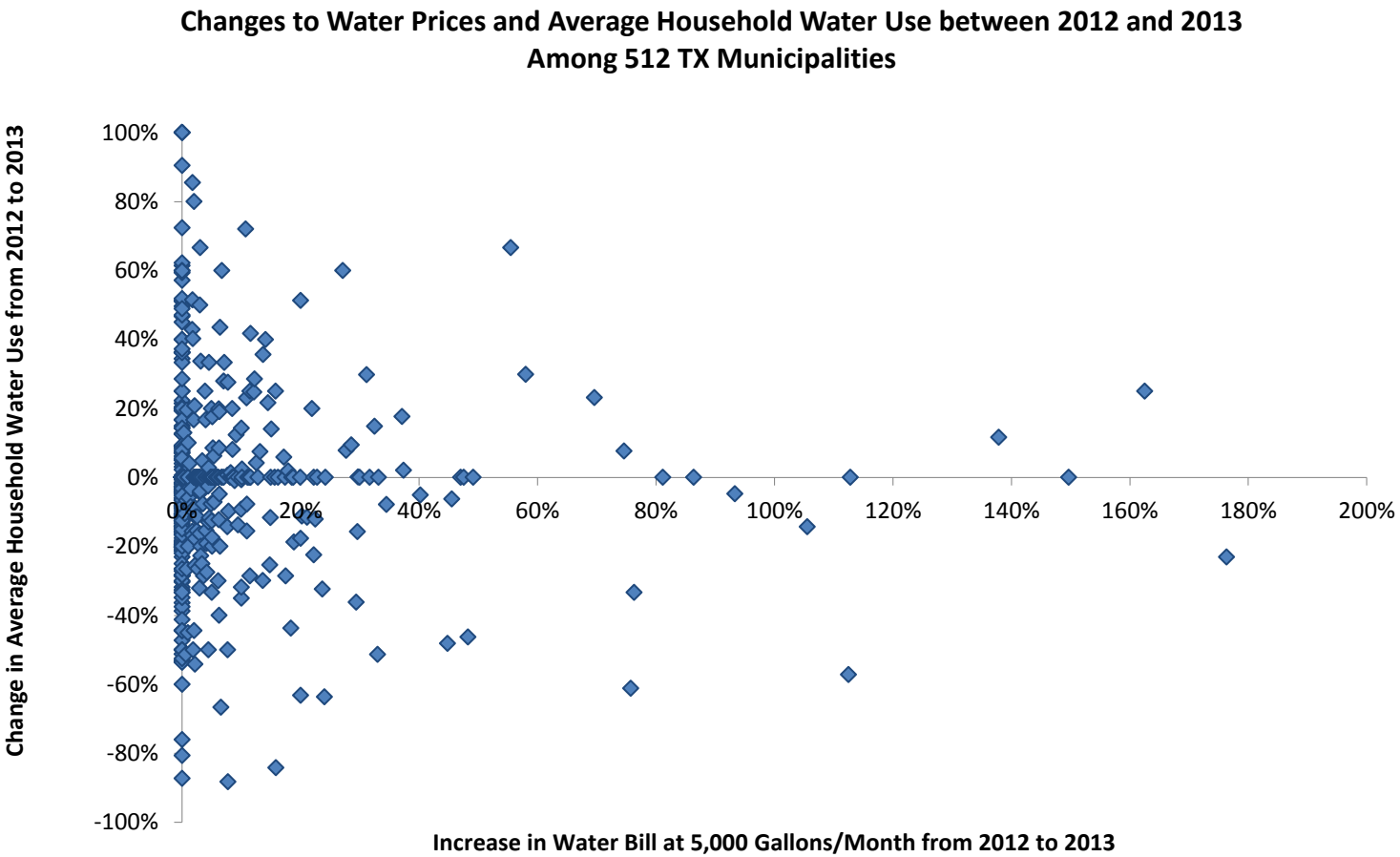
- Average price?
- Perceived price?
- Marginal price?
- Pricing structure?
- Temporal pricing adjustments?

# Average price



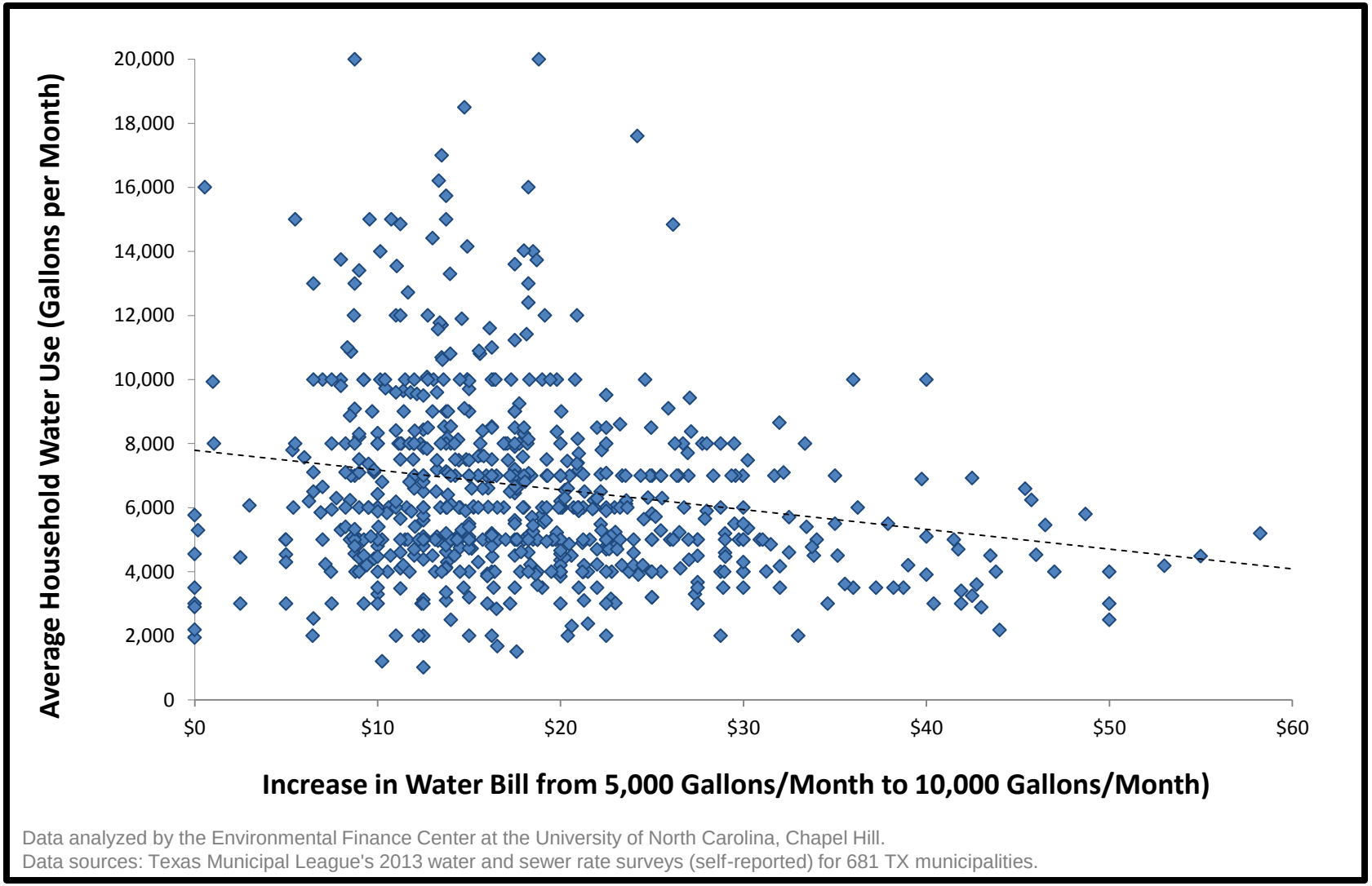

Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data sources: Texas Municipal League's 2013 water and sewer rates survey (self-reported). Boxes indicate the interquartile range (middle 50%) of charges and water use among the municipalities in each region. 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



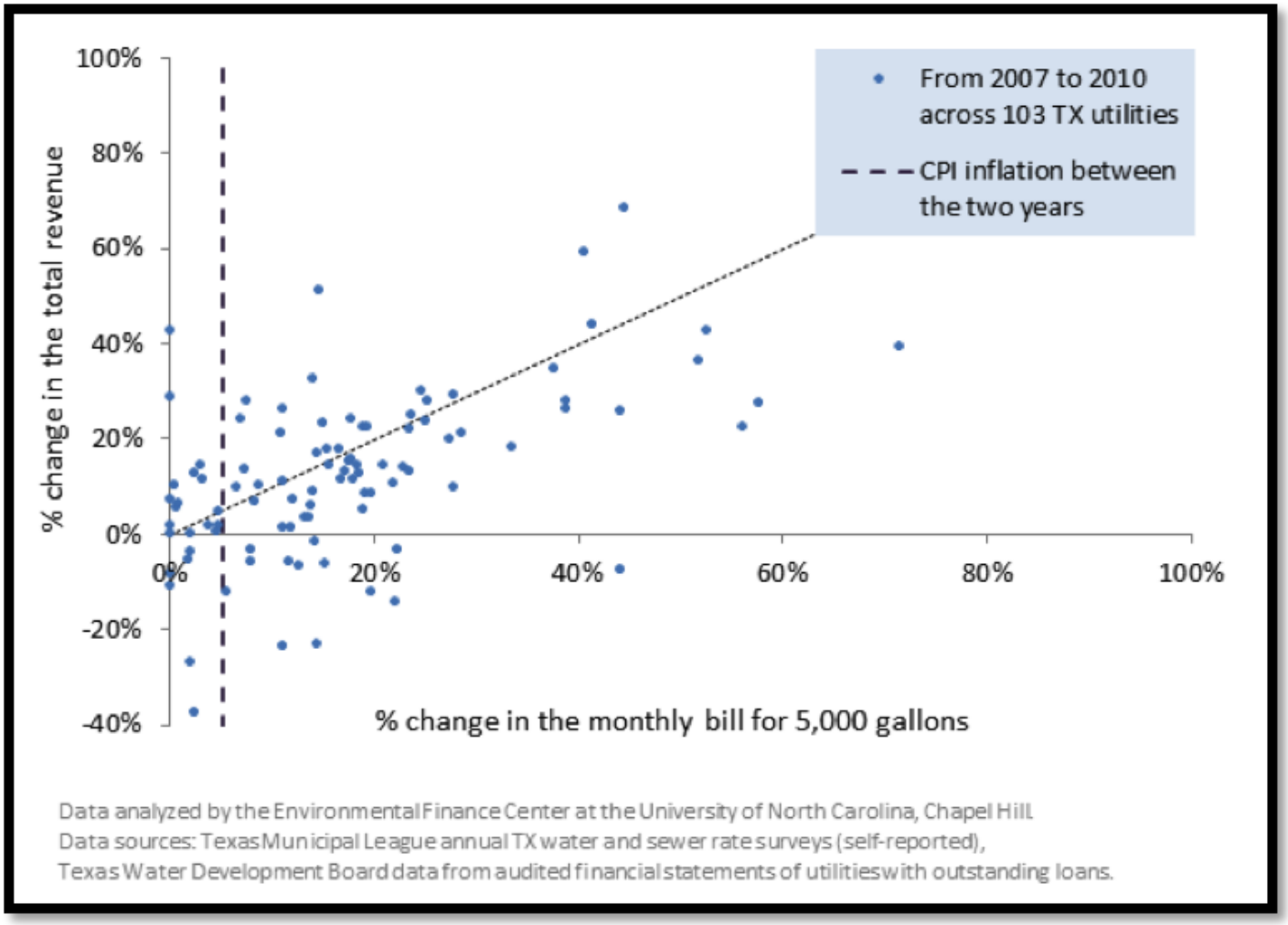

Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data sources: Texas Municipal League's 2012 and 2013 water and sewer rate surveys (self-reported). Out of 512 municipalities, 282 (55%) reported no change in the water bill between 2012 and 2013.

# “Marginal price”

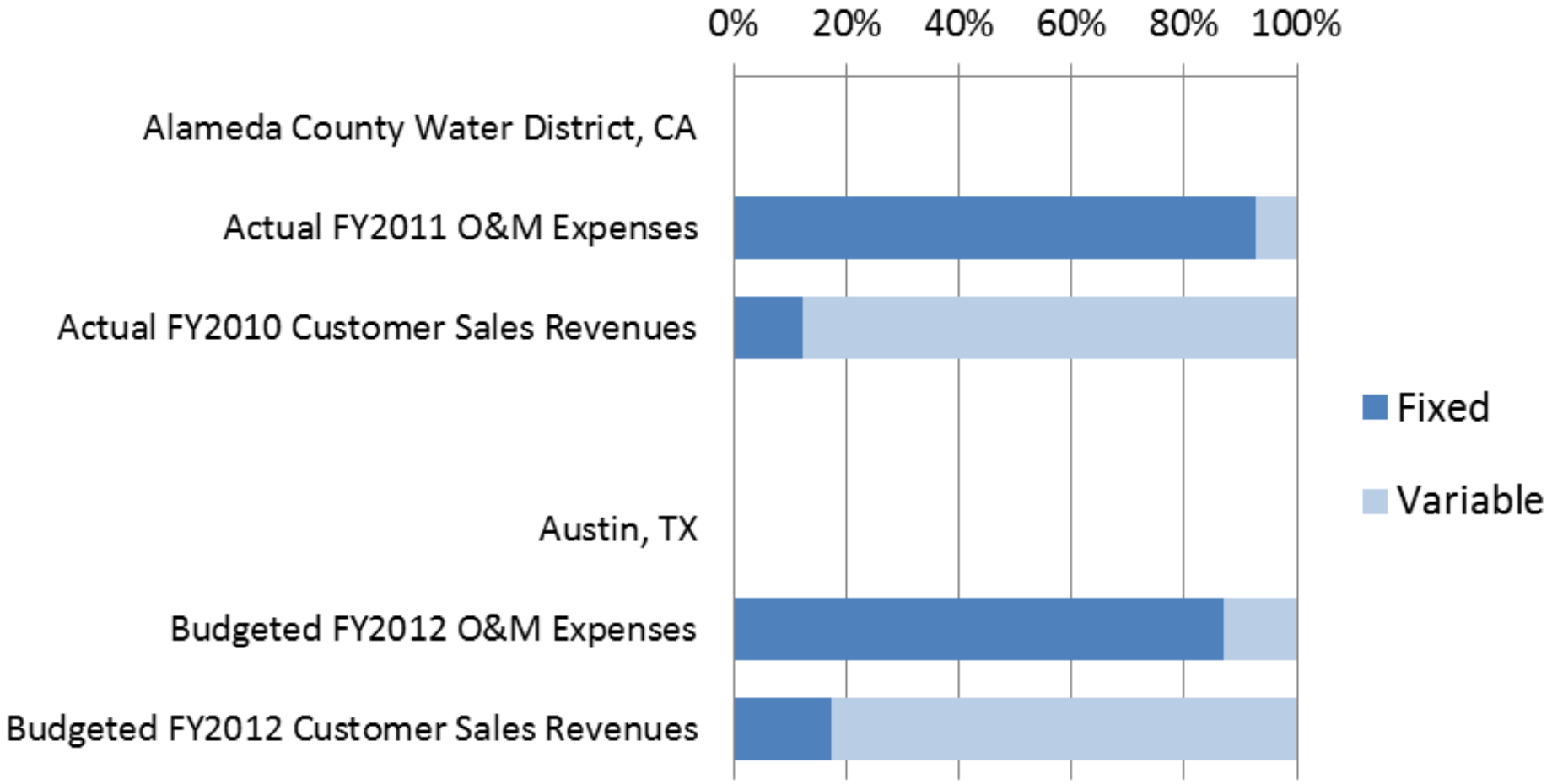



Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill.
Data sources: Texas Municipal League's 2013 water and sewer rate surveys (self-reported) for 681 TX municipalities.

# The rate: revenue relationship

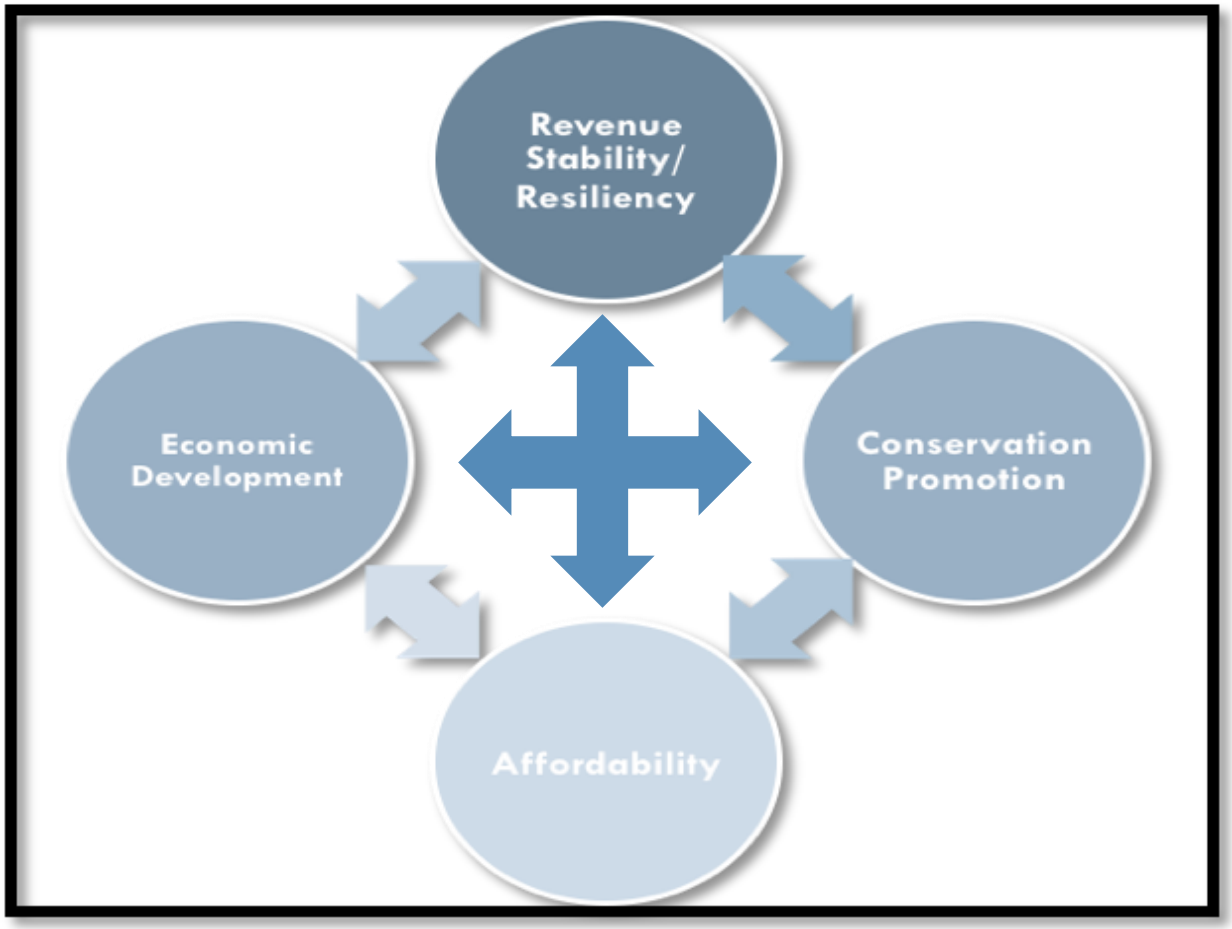


# Fixed versus Variable O&M Expenses and Customer Sales Revenues



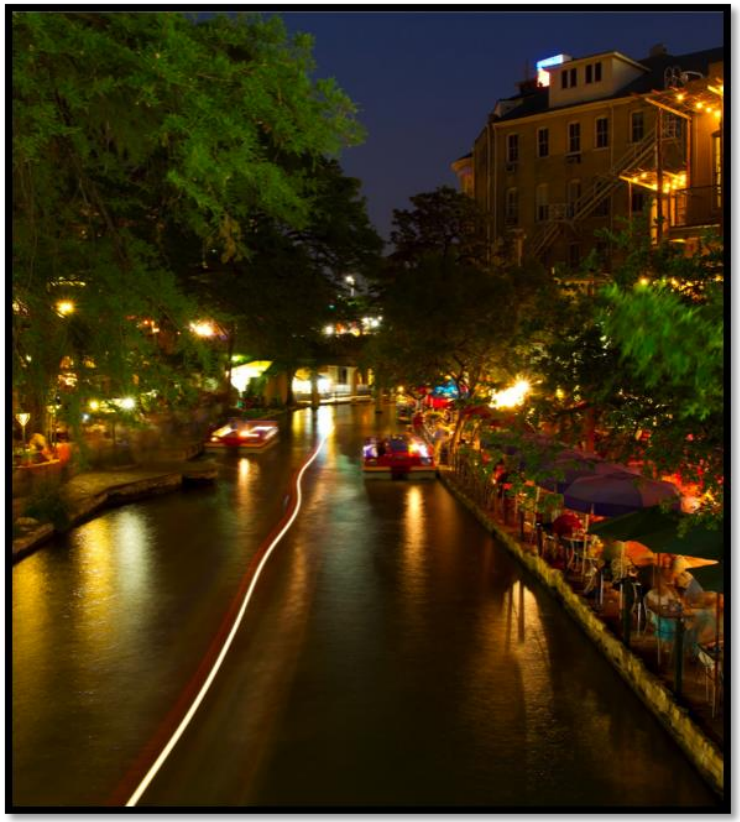

Data analyzed by the Environmental Finance Center at the University of North Carolina, Chapel Hill and Raftelis Financial Consultants, Inc. Data Sources: Alameda County Water District's Financial Plan model and Austin Water's FY2012 budget estimations in the Reference Material to the Joint Subcommittee on Resource Management Commission, Water & Wastewater Commission, and Impact Fee Advisory Committee.

# Striking a Balance



# 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

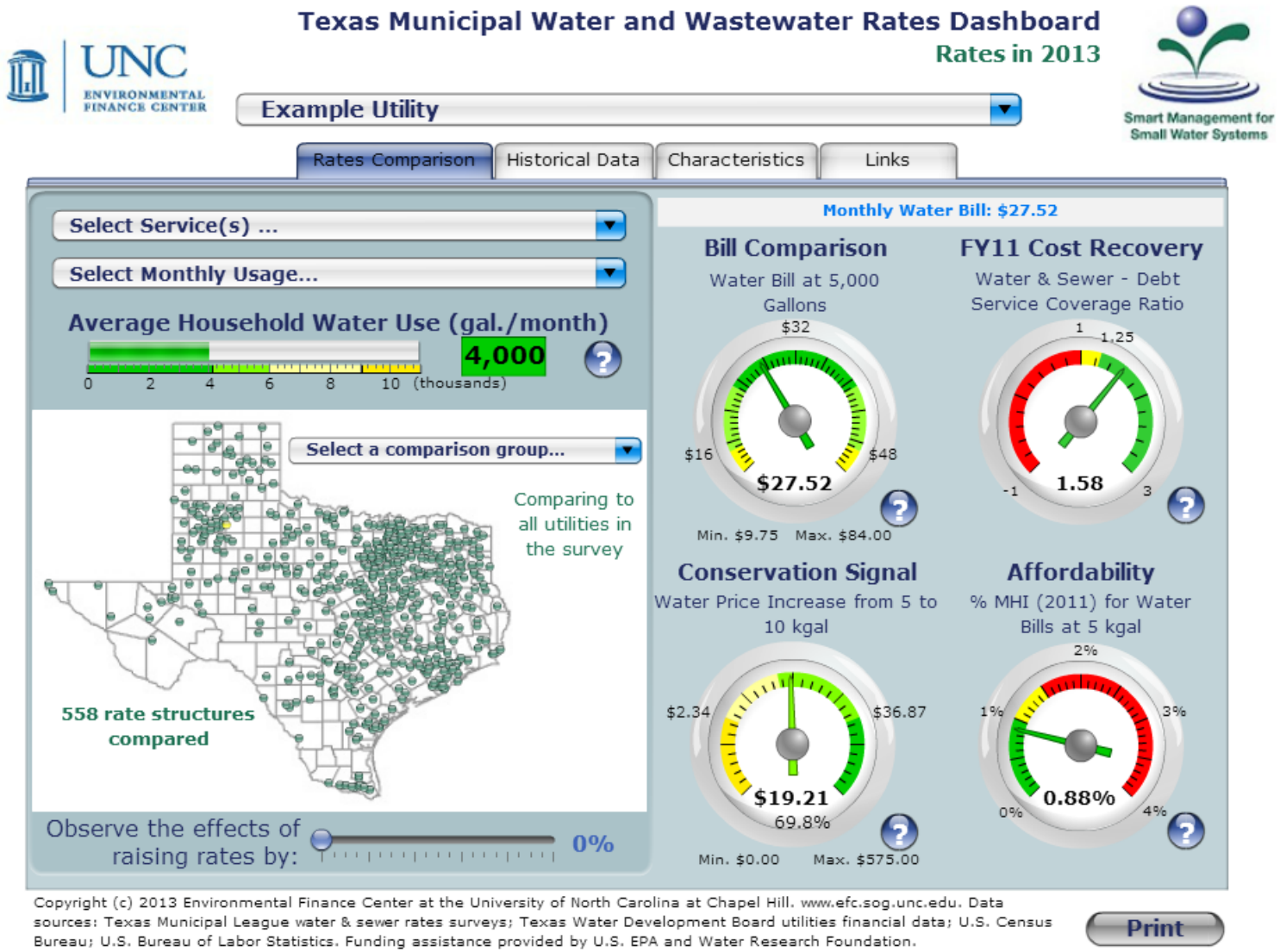
# *Approaches to Ensure a Pricing Signal is Being Sent*

- 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

# http://www.efc.sog.unc.edu



# 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

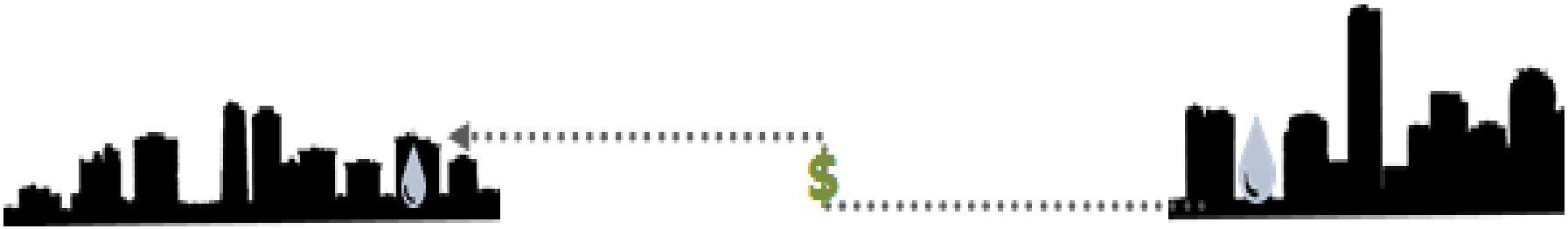
# Alternative Rate Designs

- **PeakSet Base Model:** *inspired by the demand ratchet rates of energy utilities*
  - Case study: Consumption-based fixed revenue water rate system in David, California
- **Customer*Select* Model:** *inspired by cell phone plans*
- **WaterWise Dividend Model:** *inspired by retail cooperative organizations*
  - Case study: DC Water

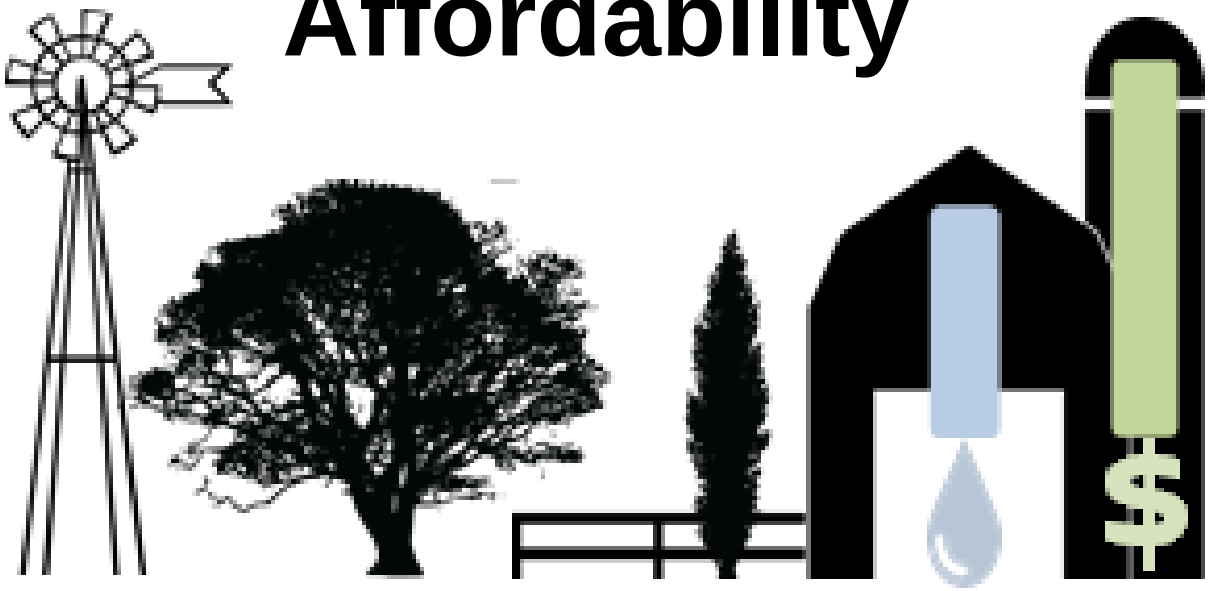
Hughes, J. et. al. 2013. Defining a Resilient Business Model for Water Utilities. Water Research Foundation. http://www.waterrf.org/Pages/Projects.aspx?PID=4366

# 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?

*Jeff Hughes*
*Director*
*Environmental Finance Center at the University of North Carolina*
*efc.sog.unc.edu*
*jhughes@sog.unc.edu*
*(919) 843-4956*

*Mary Tiger*
*Chief Operating Officer*
*Environmental Finance Center at the University of North Carolina*
*efc.sog.unc.edu*
*mwtiger@sog.unc.edu*
*(919) 843-4958*