Rate Structures

GFOAT Fall Conference | Houston, Texas

Presented by:
David S. Yanke
Agenda

• Review Rate-Setting Process

• Wholesale Water and Wastewater Issues

• Rate Design
The “business side of government”

• Self sufficiency – In a “perfect” world
  – Revenues must match or exceed expenses

• City Council serves as the Board of Directors
  – Policy-setting body

• Important to understand the board’s goals and objectives
Financial Planning Policies

Reserve Requirements
- Types of reserves
- Amount of reserves
- How reserves are funded

Capital Structure
- Use of long-term debt
- Accumulation and use of cash reserves

Intergenerational Equity
- Impact fees/Developer credits
- Long-term debt
Rate Policies

Cost-based?
Affordability and/or Subsidies?
Frequency of rate changes?
Growth pays for growth?
Smoothing to avoid rate shock?
Conservation price signaling?
Rate Setting Process

1. Revenue Requirements
   – How much revenue do I need?

2. Allocation of Costs
   – Who should be responsible for providing that revenue?

3. Rate Design
   – How am I going to recover that revenue?
Rate Setting Process

Revenue Requirement
• Compares the revenues of the utility to its expenses to determine the overall level of rate adjustment

Cost of Service
• Equitably allocates the revenue requirements between the various customer classes of service

Rate Design
• Design rates for each class of service to meet the revenue needs of the utility, along with any other rate design goals and objectives
Allocation of Costs – Peaking Example

<table>
<thead>
<tr>
<th>Average Use (MG)</th>
<th>Peak Use (MG)</th>
<th>Peaking Factor</th>
<th>Load Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.04</td>
<td>1.75</td>
<td>1.68</td>
<td>60%</td>
</tr>
</tbody>
</table>

Average Use

Peak Use

Peaking Factor

Load Factor

Customer Profile

Peak Use

Average Use
## Customer Class Cost Allocation Example

<table>
<thead>
<tr>
<th></th>
<th>Average Use (MG)</th>
<th>Peak Use (MG)</th>
<th>Excess Capacity (Peak – Average) (MG)</th>
<th>Peaking Factor</th>
<th>Load Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer A</td>
<td>1.11 (28%)</td>
<td>1.46</td>
<td>0.36 (16%)</td>
<td>1.32</td>
<td>76%</td>
</tr>
<tr>
<td>Customer B</td>
<td>1.21 (31%)</td>
<td>1.61</td>
<td>0.40 (18%)</td>
<td>1.33</td>
<td>75%</td>
</tr>
<tr>
<td>Customer C</td>
<td>1.23 (31%)</td>
<td>2.38</td>
<td>1.15 (52%)</td>
<td>1.93</td>
<td>52%</td>
</tr>
<tr>
<td>Customer D</td>
<td>0.40 (10%)</td>
<td>0.70</td>
<td>0.30 (14%)</td>
<td>1.75</td>
<td>57%</td>
</tr>
</tbody>
</table>
Wholesale Water and Wastewater

• Wholesale Service
  – Selling of water to a customer for resale by that customer
  – Receipt of retail generated wastewater collected by a customer for ultimate treatment

• Retail customers are, and will continue to see, significant price increases from wholesale providers
Key Policy Issues – Service Receiver Perspective

• Wholesale Charges can comprise a significant portion of your total departmental expenditures

• Wholesale Rates may change *annually*

• Failure to pass along wholesale rate increases can be detrimental to your utility’s financial position
  – Implementation of Pass-Through Clauses can be beneficial
  – Level of Council oversight may need to be carefully defined
Key Policy Issues – Service Receiver Perspective

• How you use your provider’s system matters!
  – Lost and Unaccounted for Water
    • Paying for water that is never provided to customers
    • Long-term impact under a true-up / demand ratchet system
  – Infiltration and Inflow
    • Paying to treat stormwater
    • Long-term impact under a true-up / demand ratchet system
  – Peaking factor and demand
    • Owned supplies (if any)
Key Policy Issues – Service Provider Perspective

• How do you establish / change rates?
  – Do you have a specific methodology
  – Is the revenue stream stable?
• Are you encouraging efficient use?
• Protection of supply / system capacity for existing customers
• Dispute resolution
• Water Conservation / Drought Contingency Measures
  – Can you curtail / interrupt supply?
• Non-Rate Fees and Charges
  – Impact Fees, Line Extension Fees, Tap Fees, etc?
  – Equity buy-in
Legal Defensibility and Rate Criteria

• Legally Necessary Criteria
  – Texas Water Code 13.043(j)

  “. . . the commission shall ensure that every rate made, demanded, or received by any retail public utility or by any two or more retail public utilities jointly shall be just and reasonable. Rates shall not be unreasonably preferential, prejudicial, or discriminatory but shall be sufficient, equitable, and consistent in application to each class of customers.”
Legal Defensibility and Rate Criteria

• Original Jurisdiction – A City has original jurisdiction over rates charged to individuals who vote for the City Council (inside City customers). These rates cannot be appealed to a higher body – customer recourse is to elect new representation.

• Appellate Jurisdiction – Outside City customers can appeal municipal rate making action if 10% of more protest the increase. TCEQ also has appellate jurisdiction over wholesale rates.

• Texas Water Code 13.043 (i)
  – The governing body of a municipally owned utility or a political subdivision, within 60 days after the date of a final decision on a rate change, shall provide individual written notice to each ratepayer eligible to appeal who resides outside the boundaries of the municipality or the political subdivision. The notice must include, at a minimum, the effective date of the new rates, the new rates, and the location where additional information on rates can be obtained. The governing body of a municipally owned utility or a political subdivision may provide the notice electronically if the utility or political subdivision has access to a ratepayer’s e-mail address.
Rate Structure Components

- **Fixed Charge**
- **Variable or Consumption-Based**

**Fixed Costs**
- Does not vary with sales
- Salaries, Debt Service, etc.
- Typically a majority of costs for a utility

**Variable Costs**
- Varies with water sales
- Power, chemical, etc.
- Typically a limited portion of costs for a utility

**Stability of Revenue Stream Should Always be Considered**
Common Water Rate Structures

- Fixed Charge
  - Minimum Charge
  - Meter Charge

- Should this include a water allocation?

- Variable Charges
  - Uniform
  - Declining Block
  - Inclining Block
  - Seasonal
Declining Block Rate Structure

$/$k gal

Quantity
Declining Block Rates

- Fairly simple for customers to understand and for utility to administer
- Equitable
  - Assuming more water means more efficient use
- Stable revenue stream
- Does not promote conservation

<table>
<thead>
<tr>
<th>Gallons</th>
<th>Inside City MIN</th>
<th>Outside City MIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>first 2k</td>
<td>2.94</td>
<td>4.43</td>
</tr>
<tr>
<td>next 23k</td>
<td>1.92</td>
<td>2.88</td>
</tr>
<tr>
<td>next 975k</td>
<td>1.59</td>
<td>2.40</td>
</tr>
<tr>
<td>next 4 mil</td>
<td>1.53</td>
<td>2.30</td>
</tr>
<tr>
<td>over 5 mil</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Inclining Block Rate Structure

$\text{$/k gal}$

Quantity
Inclining Block Rates

- More difficult to design / implement in terms of revenue stability
- Can be more difficult to understand
- Equitable / Inequitable depending on system use
- Can destabilize revenue stream
- Encourages conservation

<table>
<thead>
<tr>
<th>Residential Volumetric Rates</th>
<th>$ per 1,000 gallons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,501 to 15,000 gallons</td>
<td>$3.18</td>
</tr>
<tr>
<td>15,001 to 25,000 gallons</td>
<td>$3.98</td>
</tr>
<tr>
<td>25,001 to 50,000 gallons</td>
<td>$4.97</td>
</tr>
<tr>
<td>50,001 to 75,000 gallons</td>
<td>$7.47</td>
</tr>
<tr>
<td>More than 75,000 gallons</td>
<td>$11.20</td>
</tr>
</tbody>
</table>
Uniform Rate Structure (as Illustrated by Class)

- Class 1
- Class 2
- Class 3

$/k\text{ gal}$ vs Quantity
Uniform Rates

- Least administrative burden
- Low risk of implementation in revenue sufficiency
- Common rate structure for wholesale customers
  - Does not recognize peaking impact
- Less revenue volatility
Seasonal Rate Structure

$/k gal

Months

Summer
Seasonal Rates

- Low administrative burden
- Moderate revenue implementation risk
- Increased incentive for conservation
- Increased revenue volatility
- Increased potential for rate shock

<table>
<thead>
<tr>
<th>Step in gallons</th>
<th>Inside City Limits</th>
<th>Outside City Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rate per 100 gallons</td>
<td>Rate per 100 gallons</td>
</tr>
<tr>
<td>First 5,985</td>
<td>$0.0971</td>
<td>$0.1264</td>
</tr>
<tr>
<td>Next 6,732</td>
<td>0.1406</td>
<td>0.1828</td>
</tr>
<tr>
<td>Next 4,488</td>
<td>0.1982</td>
<td>0.2578</td>
</tr>
<tr>
<td>Over 17,205</td>
<td>0.3471</td>
<td>0.4513</td>
</tr>
</tbody>
</table>

The Volume Charge “Seasonal” Rate Per 100 Gallons shall be applied to all billings beginning on or about May 1 and ending after five complete billing months on or about September 30 of each year. At all other times the Volume Charge “Standard” Rate Per 100 Gallons shall be utilized.
Drought and Surcharge Rates

• Added to existing rates to collect needed revenues and/or influence behavior
  – Response to Disaster/Droughts
  – Rate Stabilization
  – Elevation Surcharges
  – Capital Financing
Indexed Rates

- Alternative to traditional rate study
- Rates are adjusted periodically based on accepted cost or price index
- Periodic review still needed to address changes in customer demand / equity in charges
- May lead to insufficient revenue unless coupled with pass-through for wholesale / capital cost needs
Affordability

• Programs vs Rate Structure
  – Discounted Total Bill
  – Reduced Rate Structure
  – Fixed Credit

• Administrative Issues
  – Eligibility Verification
  – Remaining customers have no choice in subsidizing service – Service could be perceived as a social program
Affordability

• **EPA Affordability**
  - 2.5% of Median household income for annual water service
  - OR
  - 4.5% for annual water and wastewater service combined.

• **TCEQ Affordability** - considered “Disadvantaged” if household cost factor
  - is greater than 1% for water
  - OR
  - is greater than 2% for water and sewer combined

- Household Cost Factor
  
  \[
  \text{(Average Annual Water Bill + Average Annual Sewer Bill) / Annual Median Household Income}
  \]
Common Wastewater Rate Structures

• Quantity
  – Uniform rate across all customer classes for volumes
  – How is quantity determined?
    • Winter average
    • Cap/Max amount

• Quality
  – Extra-strength surcharges
Stormwater

• Allocation Based on Cost Causation
  – Cost primarily based on quantity

• Defined in LGC 552 Subchapter C
  – Rates can be based on size in area, number of water meters, or topography
  – Cannot charge customers with private drainage systems
  – Some mandatory exemptions
Questions
Thank you for your time.

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