Our Current Revenue Loss Dilemma: Is Consumer Conservation Really the Culprit?

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Great Lakes and St Lawrence Cities Initiative
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One State’s Example

- Gross State Product and Population have been growing, but water use has been declining
- The “new normal” is declining demand
- Utilities have not been accurately forecasting this “new normal”
- Water supplier board members hesitant to revise revenue collection accordingly
Water Usage in U.S. Cities

Residential water sales (NAWC)

Annual residential gallons sold per residential customer (NAWC)
(with five-year moving average)
A Success Story?

- But we don’t like it.
- Lowered demand means reduced revenue for the water utility
- Reduced sales revenue can mean not fully collecting fixed costs
  - Short-run variable costs (water, pumping energy, chemicals)
  - Long-run capacity costs (supply, transmission, storage, treatment)
- Revenue stability becomes an issue
What Causes Revenue Loss?

- Reduced demand from:
  - efficient fixture replacement under the plumbing and appliance codes
  - active conservation programs
  - the recession: industrial shift layoffs, home foreclosures
- Reduced peak demand in wet years
- Increased infrastructure costs
- Continuing Inflation
- Rise in fixed costs
Trends in consumer prices (CPI) for utilities [1978 to 2009]

- Garbage
- Cable/sat. television
- Water and sewer
- Fuel oil
- Natural gas
- Local phone
- ALL ITEMS (CPI)
- Postage
- Electricity
- Internet (1997=100)
- Wireless (1997=100)
- Interstate phone
- Beecher IPU - MSU
Exhibit 4. Trends in the difference between the overall CPI and the CPI for utilities (1978-2011). The index is set to 100 for 1982-1984 except for internet and wireless services, where the index is set to 100 for 1997.
The Problems

1. The extent of the reduced demand, and therefore reduced sales, is catching utilities by surprise.
2. Water costs are rising faster than for other utilities like energy, telephone, and cable, so rates are rising.
3. The “bundling” of other services into “the water bill” makes the rise in the customer bill worse in the eyes of the customer.
4. The customers understand very little about their rates, or bills, or shortages.
And in Wet Years?

- Outdoor water use is lower
- Water suppliers then complain about not selling enough water to meet fixed costs
- The costs avoided by the utility from conservation get forgotten in the drive to sell excess capacity
- Worse, consumers expect the water bill to go down not up when supplies are available
- Revenue structure cannot deal with these wide swings
- We need properly designed rate structures to stabilize systems
The Political Reality

We don’t like to revise our rates

- It is politically unpopular, so rates are changed as little as possible
- The inevitable inflationary increase is postponed until it is a crisis, much less increases in other costs
- Conservation is often blamed as the culprit – even when the water utility or district is doing no active conservation programs at all!
- The media feeds the frenzy
And Conservation?

It should still be a cost reducer to the utility

- Every gallon saved is water that does not have to be pumped and treated and delivered to the customer
- Reduced utility costs generally mean reduced rates for the customer on a long-term basis
- But the effects have to be planned for
- Conservation should not be the scapegoat for revenue loss due to other drivers
Systems Are Still Growing

- 2006 EPA Study showed that 52.6% of community water system capital improvement expenditures were for expansion, not replacement.
- Conservation programs help with reducing expansion costs.
- Long-term planning is critically important.
Getting Started:
1. The model uses a simple worksheet tab color code:
   - Blue Tabs = User Data Entry
   - Green Tabs = Model Outputs/Results
   - Gray Tabs = Data Storage and Library
2. First provide information about your system, customers, and water demands. This is done on data entry worksheets 1 thru 3.
3. Next, define or import conservation activities and set their annual activity levels. This is done on data entry worksheets 4 and 5.
4. You can save conservation activity scenarios at any time. You access the scenario manager on the Common Assumptions worksheet.
5. You can navigate to model worksheets by clicking on the model schematic below or by clicking on the worksheet tabs at the bottom of the screen.
6. Data entry cells on input worksheets look like this: **Only enter data in cells with this color coding.**
## Utility Revenue Requirement and Rate Impacts

<table>
<thead>
<tr>
<th>Program Impact on...</th>
<th>Baseline</th>
<th>With Conserv.</th>
<th>Change to Baseline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Utility Annual Sales Revenue Requirement</td>
<td>$49,742,591</td>
<td>$49,562,581</td>
<td>$(180,010)</td>
</tr>
<tr>
<td>% change from baseline</td>
<td>-0.36%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avg. Water Rate ($/Thou Gal)</td>
<td>$2.17</td>
<td>$2.29</td>
<td>$0.13</td>
</tr>
<tr>
<td>% change from baseline</td>
<td>5.86%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annualized Bill Impact ($/Mo.)</td>
<td>46.86</td>
<td>46.69</td>
<td>$(0.16)</td>
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<tr>
<td>% change from baseline</td>
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### Select Impact Chart to View

- Revenue Requirement

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**Impact to Utility Sales Revenue Requirement Under Two Financing Approaches**

The chart shows the impact of Utility Sales Revenue Requirement under two financing approaches from 2008 to 2037. The x-axis represents the years from 2008 to 2037, while the y-axis represents the change in revenue requirement in millions of dollars. The chart includes bars indicating the change in annual revenue requirement assuming pay-go financing and the change in revenue requirement assuming 20-Yr Debt Financing.
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**Select Impact Chart to View**

- Avg. Water Bill

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**Impact to Average Water Bill**

![Graph showing impact to average water bill over years]

Legend:
- Blue bar: Change in Average Bill Assuming Pay-Go Financing
- Red bar: Change in Average Bill Assuming 20-Yr Debt Financing

Table 1: Water Utility Annual Sales Revenue Requirement

<table>
<thead>
<tr>
<th>Year (2008-2037)</th>
<th>Change from Baseline Avg. Bill ($/Month)</th>
</tr>
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<tbody>
<tr>
<td>2008</td>
<td>($0.20)</td>
</tr>
<tr>
<td>2009</td>
<td>($0.40)</td>
</tr>
<tr>
<td>2010</td>
<td>($0.60)</td>
</tr>
<tr>
<td>2011</td>
<td>($0.80)</td>
</tr>
<tr>
<td>2012</td>
<td>($1.00)</td>
</tr>
<tr>
<td>2013</td>
<td>($0.80)</td>
</tr>
<tr>
<td>2014</td>
<td>($0.60)</td>
</tr>
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<td>2015</td>
<td>($0.40)</td>
</tr>
<tr>
<td>2016</td>
<td>($0.20)</td>
</tr>
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<td>2017</td>
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</tr>
<tr>
<td>2018</td>
<td>($0.20)</td>
</tr>
<tr>
<td>2019</td>
<td>($0.40)</td>
</tr>
<tr>
<td>2020</td>
<td>($0.60)</td>
</tr>
<tr>
<td>2021</td>
<td>($0.80)</td>
</tr>
<tr>
<td>2022</td>
<td>($1.00)</td>
</tr>
<tr>
<td>2023</td>
<td>($0.80)</td>
</tr>
<tr>
<td>2024</td>
<td>($0.60)</td>
</tr>
<tr>
<td>2025</td>
<td>($0.40)</td>
</tr>
<tr>
<td>2026</td>
<td>($0.20)</td>
</tr>
<tr>
<td>2027</td>
<td>($0.00)</td>
</tr>
<tr>
<td>2028</td>
<td>($0.20)</td>
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<td>2029</td>
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<td>2030</td>
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<td>2031</td>
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<td>2032</td>
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<td>2033</td>
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<tr>
<td>2036</td>
<td>($0.20)</td>
</tr>
<tr>
<td>2037</td>
<td>($0.00)</td>
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Our First Effort

- Rates and Water Pricing Project in the Great Lakes Region
- Workshops held in 2010
- Primer published 2011
- Author: Dr. Janice Beecher, Institute for Public Utilities, Michigan State University
- Practical advice for water board elected officials, managers, and consumers
Declining Water Sales Summit

- Held August, 2012
- Hosted by AWE and the Johnson Foundation at Wingspread
- 30 Attendees included utility CEO’s and finance managers, regulators, rates experts, economists, non-profit advocates
Summit Summary

- Results of August, 2012 Rates Summit
- Detailed Summary and background Framing Paper
- Posted at a4we.org
Summit Discussion Areas

1. How and why are water sales declining?
2. Are water utility revenues falling short of revenue requirements?
3. Do water utilities and the conservation community have a messaging problem?
4. What methods are available to repair revenues and improve fiscal stability?
5. What role do industry standards, practices, and policy reforms play?
Address the revenue shortfall

- Rate adjustments
- Improved cost forecasting
- Improved demand forecasting
- Weather normalization
- Cost-adjustment mechanisms
- Cost indexed rates
- Demand-repression adjustment
- Revenue-stable rate design
- Property-based fire-protection charge
Improvement Recommendations

- Forecast demand to assess water use reductions from codes and standards
- Compensate for the uncertainty of future sales with a risk compensation mechanism
- Quantify the response of water demand to changes in rates and other external factors
- Adjust revenue collection annually
- Account for the water savings actually achieved by conservation programs
- Estimate future cost-effective potential
- Educate the consumer
AWE Work Products

Already Completed:

- Final Summit Summary
- Framing Paper on Summit Discussion issues

To be Completed in 2013:

- Reforming Ratemaking White Paper
- Handbook for Achieving Efficiency-Oriented Revenue Stability
- Second “Solutions summit” at Wingspread
- Digital Rates Resource Hub
- Consumer Information Campaign
NEVERWASTE.ORG
Explore Water Conservation
With Our Water Use Calculator

Want to conserve water? Not sure where to start? Our Water Calculator quickly estimates how much water your household uses and compares it to a similar average and a highly efficient home.

The Water Calculator also shows you where to begin your home water conservation efforts. Throughout Home Water Works, you’ll find useful tips and resources for saving water and money without sacrificing comfort or convenience.

Get the bottle that will 
**CHANGE THE WAY**
you think about **WATER**.

Join our Never Waste 
Campaign. **Click Here**

Does Your Landscape Have a 
Drinking Problem?
Read about outdoor water conservation for helpful information on how to keep your landscape looking beautiful while staying water efficient.

Quick & Easy Tips For Saving 
Water at Home and Work
Looking for quick and easy ways to save water? Read our water conservation and saving tips to see how easy it can be to conserve water at home and in the workplace!
One Option

- Water budget-based rates are found to be the most equitable rate structures.
- The revenue requirement based on the budgets, not the actual consumption.
- This means predictable, low bills for customers that conserve.
- Customers exceeding their budget pay more, with the penalty revenue used to fund conservation programs.
- Because the water utility is made whole by collecting its needed revenue on the budget baselines, it does not lose money when customers conserve.

Let’s Get Started!
Click an area on the home to input how much water you use, and learn how you can conserve water there. Answer for yourself only, and assume you are in your home for a 24-hour cycle.
Assessing Industrial Water Use Efficiency

The Alliance for Water Efficiency, with funding from the Great Lakes Protection Fund, assessed five representative industries within the Great Lakes watershed that are supplied with treated drinking water and that discharge to a local wastewater utility. Both water conservation savings and environmental benefits were documented. Learn more here.

AWE Publishes Results of Declining Water Sales Summit

In August 2012, AWE and The Johnson Foundation at Wingspread co-hosted a summit with water utility managers, rate experts, price regulators, economists, and advocacy groups to explore the issues surrounding declining water sales, utility revenue losses, and the impact on conservation programs. A report including the summit results, as well as a detailed background framing paper, can be downloaded here.

Supply Shortages Looming: Colorado River Basin Water Supply & Demand Study

The Colorado River - lifeblood of 7 western U.S. states - will not provide enough water to meet future demand according to a new study. The Colorado River Basin Water Supply and Demand was released by the U.S. Bureau of Reclamation in December after three years of research. The study forecasts a significant gap between available supply and the expected demands of a growing population within 50 years. Learn more here.