Capital Finance Overview:
Dealing with the New Normal

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Defining a Resilient Business Model for Water Utilities

• Water Research Foundation Project #4366

• Objectives:
  – To define new financial approaches and paradigms for water utilities in addressing current and future fiscal challenges
  – To explore new methods of identifying and reducing the risks associated with revenue variability

• On-going research discussion at www.efc.web.unc.edu

• Final research will be at www.waterrf.org
WHAT IS YOUR BUSINESS MODEL, WHAT DO YOU SELL?
Water Sales (1980-2009)
(Slide provided by Orange Water and Sewer Authority)

Lower than projected demands have resulted in cumulative net revenue reduction of about $7.3 million over last 3 years.

Figure 3. OWASA Water Sales, FY 1980-2009

Average Annual Increase
1980-2002: 0.195 mgd/year
2003-2009: -0.044 mgd/year
Water Sales (ccf) per Account

- Yorba Linda Water District
- Glendale Water and Power
- Mesa Consolidated Water District
- Nashville Water
- Baltimore Water
- San Antonio
Challenge: Uncertain Revenue

Changes in water use have had:

- A large negative impact
- A small negative impact
- No impact
- A small positive impact
- A large positive impact

Source: Water Resource Foundation/Environmental Finance Center
when you conserve water... we have a deficit... so I have to raise your rates!
The challenge of driving revenue increases through rate increases:

*HH rate versus revenues increases (2004 to 2010)*

**Preliminary Results**

Data analysis by the Environmental Finance Center at the University of North Carolina.

Data sources: 2010 and 2004 RFC/AWWA Water and Wastewater Rates Survey Data for 82 Utilities
Short Term Fixed vs. Variable

Revenue and Expenses for Charlotte-Mecklenburg Utilities in a Given Year

Revenues
- Usage Rates, 82%

Expenses
- Debt Service, 52%
- Operations, 25%
- Billing Costs, 10%
- PAY-GO, 7%
- Power and Chemicals, 6%

Source: CMU Director Doug Bean's presentation to the Charlotte City Council on December 1, 2008.
Non-Capital Operating Ratios for Colorado Water/Sewer Utilities

Middle 80% of utilities (with median)

Fiscal Year (and number of utilities)

Preliminary Results

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

Data source: Colorado Water Resources and Power Development Authority.
Meeting Revenue Challenges

- Costs
- Finance Policies
- New pricing and business models
- Supplemental services (behind the meter)
- Affordability programs
- Communication, communication…
A Utility Finance Policy is?

a. A method for maintaining a better credit rating
b. A tool for influencing board decisions
c. A bunch of words not worth the paper they are written on
d. A vision of what a utility would like to become
e. All of the above?
Variations

- Length: 1 to 40 pages
- Format: 1 policy, dozens of separate policies
- Board role: reviewed, approved, informed
- Customer/public role: extensive, as an after thought
- Contents: metrics, reserve policies, financial philosophies and objectives
CASH RESERVES AND DEBT MANAGEMENT

IT IS THE POLICY OF EAST BAY MUNICIPAL UTILITY DISTRICT TO:

Maintain operating and self-insurance reserves necessary to provide ongoing working capital while maintaining a reasonable balance between debt and current revenue financing of capital projects. Adequate reserves and sound financial policies promotes the District's good standing in the capital markets; provides financing flexibility; avoids potential restrictive debt covenants; maintains markets for District debt; and facilitates future financing of capital projects at reasonable costs.

Maintaining the balance between current funding sources and debt financing is critical to retaining the District's financing flexibility. Flexibility allows the District to use a variety of revenue or debt-financing alternatives, including issuing low cost variable rate and other revenue supported debt.
# Financial Policies and Guidelines:

**Internal financial policies**

<table>
<thead>
<tr>
<th>EBMUD Financial Indicator</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working capital reserve</td>
<td>$\geq 3x$ monthly net O&amp;M expenses</td>
</tr>
<tr>
<td>Self-insurance reserve</td>
<td>$1.25x$ expected annual costs</td>
</tr>
<tr>
<td>Contingency/rate stabilization reserve</td>
<td>$20%$ of annual water volume revenues</td>
</tr>
<tr>
<td>Debt service coverage ratio</td>
<td>$\geq 1.6x$ coverage</td>
</tr>
<tr>
<td>Debt-funded capital</td>
<td>$\leq 65%$ of total CIP spending over 5 year planning period</td>
</tr>
</tbody>
</table>
# Orange Water and Sewer Authority

## Financial Performance Objectives

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Objective</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Capital Reserves</td>
<td>The greater of 4 months of O&amp;M budget or 20% of the succeeding 3 years of CIP budget</td>
<td>A.1</td>
</tr>
<tr>
<td>Capital Improvements Reserve Fund</td>
<td>Minimum fund balance target of 2% of annual depreciated capital costs</td>
<td>B.1</td>
</tr>
<tr>
<td>Debt Service Coverage Ratio</td>
<td>≥ 20</td>
<td>D.1</td>
</tr>
<tr>
<td>Debt Burden to Asset Value</td>
<td>≤ 5 %</td>
<td>D.2</td>
</tr>
<tr>
<td>Sufficiency of Revenues Above Debt Requirements</td>
<td>Annual Debt service shall not exceed 35% of annual gross revenues</td>
<td>D.3</td>
</tr>
<tr>
<td>Credit Ratings</td>
<td>Aa2 – Moody’s, AA+ – Standard &amp; Poor’s, AA+ – Fitch</td>
<td>D.4</td>
</tr>
<tr>
<td>Cash Financing of Capital</td>
<td>Annual revenues and cash reserves shall provide not less than 30% of CIP funding</td>
<td>E.1</td>
</tr>
<tr>
<td>Rate/Revenue Stabilization Fund</td>
<td>Minimum fund balance target of 5% of projected water and sewer revenue</td>
<td>E.2</td>
</tr>
<tr>
<td>Service Affordability</td>
<td>Average annual residential bill divided by real median household income shall be ≤ 15 %</td>
<td>F.2</td>
</tr>
</tbody>
</table>
RESOLUTION ADOPTING ORANGE WATER AND SEWER AUTHORITY
FINANCIAL MANAGEMENT POLICY

WHEREAS, Orange Water and Sewer Authority recognizes the importance of sound business practices and strong financial policy to support the utility’s long-term fiscal sustainability; and

WHEREAS, Orange Water and Sewer Authority’s Strategic Financial Management and Planning Document has guided financial policy since 1996; and

WHEREAS, staff and the Board of Directors’ Finance Committee have developed a revised financial management policy; and

WHEREAS, the revised Orange Water and Sewer Authority Financial Management Policy reflects sound financial policy and provides guidance for financial practices and procedures;

NOW, THEREFORE, BE IT RESOLVED:

1. That the Orange Water and Sewer Authority Financial Management Policy is hereby adopted.

2. That Orange Water and Sewer Authority’s Strategic Financial Management and Planning Document adopted September 14, 2006 is hereby rescinded.

Adopted this 26th day of March, 2009

[Signature]
Gordon Merklein, Vice Chair
What best describes your governing board’s role in financial decision making?

1. We present and they say yes
2. We present and they say no and tell us to cut
3. They provide thoughtful ideas that are incorporated into proposals and decisions
4. They voice their opinions loudly, but generally follow management’s lead.
Governance Structure Matters

- Municipal
- County
- Authority/special district
- Elected board
- Appointed board
- Number of local governments
- Number of board members
- For-profit board
Performance & Financial Information

As a single-purpose governmental entity, OWASA's financial activities are reported as a sole enterprise fund. We operate on a fiscal year that begins on July 1 and ends on June 30. The documents below provide information about our service objectives, business model and performance.

Budget for Fiscal Year 2013, 5-year Capital Program and Rates effective in October, 2012; related items

- **Summary of rates and fees.** Monthly rates for water, sewer and reclaimed water service will not increase in October, 2012. Various other fees including those for connecting to the OWASA system will increase in October based on updated cost calculations.
- **Annual budget** (July, 2012 - June, 2013)
- **Summary of 5-Year Capital Program**
- **Financial Management Policy**
- **Comparison of water and sewer bills in the Triangle region as of January, 2012**
- **UNC Environmental Finance Center information on NC water and sewer rates**

Key Indicators and Performance Measurements

- **Key Performance Measurement Dashboard** - a snapshot in graphic form of information we use to measure organizational performance.

Strategic Plan

- **Strategic Plan** as adopted in March, 2010
- **Strategic Plan Update in January, 2012**
### Capital Improvement Projects and Investments

This map represents some of the water and sewer projects completed since 2000 to serve the needs of our community.

### Cost of Improvements and Investments

Paying for capital and infrastructure projects accounts for 62 cents of every dollar spent by the utility, and is in many ways like a mortgage that has to be paid back over time. Utilities work hard to maintain an AAA-credit rating. This allows the utility to build new projects at the lowest possible borrowing rate and save millions in interest costs.

### Operating Efficiently

In an effort to maintain lower costs for customers, Utilities has increased its efficiencies in areas like energy management and reduced staffing levels. Utilities has fewer positions today than in 2001.

### Water and Sewer Customer Accounts and Staff Positions

The proposed rate increase will put crews back into the field to address water leak backlogs and other maintenance items. Currently, there are 13 pipe repair crews, down from 31. The rate increase will restore 8 additional crews. This would help reduce the service backlog by adding capacity to fix about 16 additional leaks each day on average.

### New Rates

Effective July 1, the proposed rate increase will impact each customer differently based on their water usage. For most residential customers, the impact of the new rate structure and tier rates will lead to an increase from between $3.37 to $8.99 per month, with most seeing increases between $4 and $4.59 per month.

For the typical customer who uses 8 Ccf of water each month, the total monthly bill increase will be $4.59. Of this $4.59, $2.85 will pay back construction loans. The remaining $1.74 pays for increases for personnel, chemicals, maintenance and 311/customer service.

A very small percentage of customers will see their total bill decrease because of the reduction in the sewer cap.

### Water and Sewer Rates 2011-2012

<table>
<thead>
<tr>
<th>Tier</th>
<th>2011 (current)</th>
<th>2012 (proposed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tier 1 (1-4 Ccf)</td>
<td>$2.45</td>
<td>$2.90</td>
</tr>
<tr>
<td>Tier 2 (5-8 Ccf)</td>
<td>$5.54</td>
<td>$5.96</td>
</tr>
<tr>
<td>Tier 3 (9-16 Ccf)</td>
<td>$2.69</td>
<td>$3.41</td>
</tr>
<tr>
<td>Tier 4 (over 16 Ccf)</td>
<td>$5.32</td>
<td>$5.32</td>
</tr>
<tr>
<td>Sewer Charges</td>
<td>$4.31</td>
<td>$4.14</td>
</tr>
</tbody>
</table>

### 10 Ccf Customer Bill Comparison to Other Cities

Utilities' water and sewer rates are among the lowest in the region.

### Did you know?

$1 purchases 400 gallons of water from Utilities.

By comparison, $1 purchases a single 16.9 oz bottle of water from the store.

For the same $1, Utilities delivers 400 gallons of water to customers any time, day or night.
Henry County WSA, GA

“Beginning October 1, 2008 and on the first day of October of each year thereafter, the water and sewer rates in effect as of September 30th, 2008 and each year thereafter shall be increased by 5 percent. The 5 percent rate increase shall be computed each year by increasing the previous year's rates by 5 percent. Said rates shall remain in effect until modified, amended or terminated by the Authority.”
All A-board! Strategies to Get Your Board on Track with Financial Policies

By Mary Tiger, on July 17th, 2012

Mary Tiger is the Chief Operating Officer for the Environmental Finance Center and Project Manager for the Water Research Foundation Project.

Making the way to financial sustainability can feel like an uphill battle for utilities when stressed by unexpected weather, economic and demographic obstacles. However, getting a governing board in understanding of and agreement with financial goals can keep a utility on-track to achieve financial resiliency and avoid drastic adjustments in rates.

Continue reading All A-board! Strategies to Get Your Board on Track with Financial Policies
ALTERNATIVE RATE STRUCTURES
## Fixed versus variable

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Cary</th>
<th>Durham</th>
<th>Raleigh</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘07</td>
<td>91.4%</td>
<td>82.0%</td>
<td>76.3%</td>
</tr>
<tr>
<td>‘08</td>
<td>90.8%</td>
<td>82.2%</td>
<td>74.5%</td>
</tr>
<tr>
<td>‘09</td>
<td>90.4%</td>
<td>71.0%</td>
<td>74.7%</td>
</tr>
<tr>
<td>‘10</td>
<td>91.1%</td>
<td>73.5%</td>
<td>75.4%</td>
</tr>
<tr>
<td>‘11*</td>
<td>92.3%</td>
<td>72.1%</td>
<td>78.0%</td>
</tr>
</tbody>
</table>

*FY11 does not include all 12 months in any of the data sets

Data analyzed by the Environmental Finance Center at the University of North Carolina. Data source: Each utility’s customer billing records, project funded by NC Urban Water Consortium.
Portion of Monthly Bill that is Fixed (Base Charge) Across 84 CA Utilities in 2011

Data analyzed by the Environmental Finance Center at the University of North Carolina.
Data source: AWWA and RFC CA Rates Survey, 2011
Median Price for Drinking Water
(of same 49 CA utilities)

Preliminary Results
Data analysis by the Environmental Finance Center at the University of North Carolina.
Data sources: 2009 and 2011 RFC/AWWA Water and Wastewater Rates Survey Data for 49 Utilities
Rate structures matter: Tracking Potential for Revenue Variability in NC and GA (2007 to 2011)

Number of utilities that increased the fixed proportion:
- 2008: 129
- 2009: 163
- 2010: 200
- 2011: 220

Number of utilities that decreased the fixed proportion:
- 2008: 208
- 2009: 307
- 2010: 329
- 2011: 352

Change from 2007:
- More Fixed
- More Volumetric

Middle 50% of increases (median shown as horizontal line; 90th percentile of increases shown by whisker)

Middle 50% of decreases (median shown as horizontal line; 90th percentile of decreases shown by whisker)
Charlotte-Mecklenburg Utilities

Proposed Rate Increase

<table>
<thead>
<tr>
<th>Description</th>
<th>Existing Structure</th>
<th>Combination of Options</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Water Rates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Charges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Billing Charge</td>
<td>$2.40</td>
<td>$2.40 per bill</td>
</tr>
<tr>
<td>Availability Fee</td>
<td>n/a</td>
<td>$2.19 per eq meter</td>
</tr>
<tr>
<td><strong>Usage Rates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Residential Usage</td>
<td>$1.45, $1.64, $2.69</td>
<td>$0.89, $1.77, $3.55 per ccf</td>
</tr>
<tr>
<td>Non-Residential</td>
<td>$2.04</td>
<td>$1.86 per ccf</td>
</tr>
<tr>
<td><strong>Sewer Rates</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fixed Charges</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Billing Charge</td>
<td>$2.40</td>
<td>$2.40 per bill</td>
</tr>
<tr>
<td>Availability Fee</td>
<td>$0.00</td>
<td>$3.73 per eq meter</td>
</tr>
<tr>
<td><strong>Usage Rate</strong></td>
<td>$4.31</td>
<td>$3.99 per ccf</td>
</tr>
<tr>
<td>Sewer Cap</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-Family Res</td>
<td>24</td>
<td>16 ccf</td>
</tr>
<tr>
<td>Multi-Family Res</td>
<td>11</td>
<td>11 ccf</td>
</tr>
<tr>
<td>Non-Residential</td>
<td>None</td>
<td>None ccf</td>
</tr>
</tbody>
</table>

Adopted Rate Increase

**Water Rates**
- Fixed Charges
  - Billing Charge: $2.40
  - Availability Fee: $2.25
- Usage Rates
  - Tier 1: 0-4 ccf: $0.98
  - Tier 2: 4-8 ccf: $1.96
  - Tier 3: 8-16 ccf: $3.41
  - Tier 4: <16 ccf: $5.32

**Sewer Rates**
- Fixed Charges
  - Billing Charge: $2.40
  - Availability Fee: $4.30
- Usage Rate: $4.14
- Sewer Cap
  - Single-Family Res: 16 ccf
  - Multi-Family Res: 11 ccf
  - Non-Res: None
Data analyzed by the Environmental Finance Center at the University of North Carolina.
Charlotte-Mecklenburg Utilities

Water and Sewer Revenues Fixed versus variable

Data sources: Mickey Hicks, CFO, Charlotte-Mecklenburg Utilities
Median Water Monthly-Equivalent Bill
(Same 650 NC and GA Utilities)

Data analyzed by the Environmental Finance Center at the University of North Carolina.
Data source: EFC and NC League of Municipalities Annual NC State Rate Survey, 2007-2011
EPCOR - Edmonton

- Fire Hydrant Service fee charged to the City of Edmonton; the City of Edmonton’s Fire Rescue Service Budget

Cost of Service Allocation
2007-2011
- In-City Customers: 82.5%
- Public Fire Protection: 4.5%
- Private Fire Protection: 0.5%

Cost of Service Allocation
2012-2016
- In-City Customers: 81.9%
- Public Fire Protection: 5.0%
- Private Fire Protection: 0.7%
- Regional Customers: 12.4%
Peakset Base Model

- *Inspiration = energy sector*
- A customer’s base charge would be individually set based on their three-year rolling average peak
- Builds more of utility cost recovery into the base charge while still promoting customer conservation and efficiency

<table>
<thead>
<tr>
<th></th>
<th>Current Residential Rate Structure</th>
<th>High Fixed (AR1)</th>
<th>Medium Fixed (AR2)</th>
<th>Low Fixed (AR3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Fixed Revenue</td>
<td>18%</td>
<td>57%</td>
<td>47%</td>
<td>37%</td>
</tr>
<tr>
<td>Base Rate</td>
<td>$6.00/meter – water + $6.00/meter - irrigation</td>
<td>$1.85/kgal of historic peak demand</td>
<td>$1.49/kgal of historic peak demand</td>
<td>$1.12/kgal of historic peak demand</td>
</tr>
<tr>
<td>Variable Rate</td>
<td>$3.46/kgal of previous month’s use</td>
<td>$0.52/kgal of previous month’s use</td>
<td>$1.25/kgal of previous month’s use</td>
<td>$2.01/kgal of previous month’s use</td>
</tr>
</tbody>
</table>
How would it impact individual customers?

Comparison of monthly charges for water under current rate and two Peakset Base scenarios

Rate structure
(annual charge for water)

- Current Rate ($647.744)
- MR1 ($650.468)
- AR1 ($621.548)

FY10 Peak Demand
24,100 gallons
On a scale of 1 - 5, how well would the WaterWise Dividend Model work for your utility or the utilities you work with?

1. Very well
2. Pretty well
3. Maybe so, maybe not
4. Not well
5. Dreadfully
Customer Select Pricing Model

- Customers choose allotment and “lock in” for one fixed charge for the year
- All usage over allotment is charged an overage charge

Modeled Water and Irrigation Schedule (with sewer charge the current rate) for Georgia Utility

<table>
<thead>
<tr>
<th>Plan name</th>
<th>Monthly water allotment</th>
<th>Cost for water under current rate structure</th>
<th>Customer Select Plan Cost</th>
<th>Overage Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifeline</td>
<td>2,000 gallons</td>
<td>$8.93-$13.13</td>
<td>$8.13</td>
<td>$6.83/kgal</td>
</tr>
<tr>
<td>Basic service/Small family</td>
<td>6,000 gallons</td>
<td>$15.23-$30.38</td>
<td>$18.70</td>
<td>$6.83/kgal</td>
</tr>
<tr>
<td>Light irrigation/Large family</td>
<td>10,000 gallons</td>
<td>$35.43-$54.18</td>
<td>$32.52</td>
<td>$6.83/kgal</td>
</tr>
<tr>
<td>Heavy irrigation</td>
<td>24,000 gallons</td>
<td>$64.75-$146.68</td>
<td>$81.30</td>
<td>$6.83/kgal</td>
</tr>
<tr>
<td>Water waster</td>
<td>unlimited</td>
<td>&gt;$154.18</td>
<td>$162.60</td>
<td>NA</td>
</tr>
</tbody>
</table>
Customer Select Pricing Model

Revenues Collected from Residential Customers (Fixed vs. Variable)

- $5,000,000
- $10,000,000
- $15,000,000
- $20,000,000
- $25,000,000

Total in FY11
From Base Charges

Actual charges from existing rates
Projected charges from customer...
For on-going research discussion visit:  
www.efc.web.unc.edu

For final research results visit:  
www.waterrf.org

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