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Fiscal Sustainability in Uncertain Times: Desalination in San Diego

Lisa Celaya, San Diego County Water Authority
Thomas Chesnutt, Ph.D., CAP™, A&N Technical Services

Carlsbad Desalination Plant

- ▶ Largest Desalination Plant in Western Hemisphere ~ 50mgd
- ▶ Estimated Cost ~ \$1 Billion

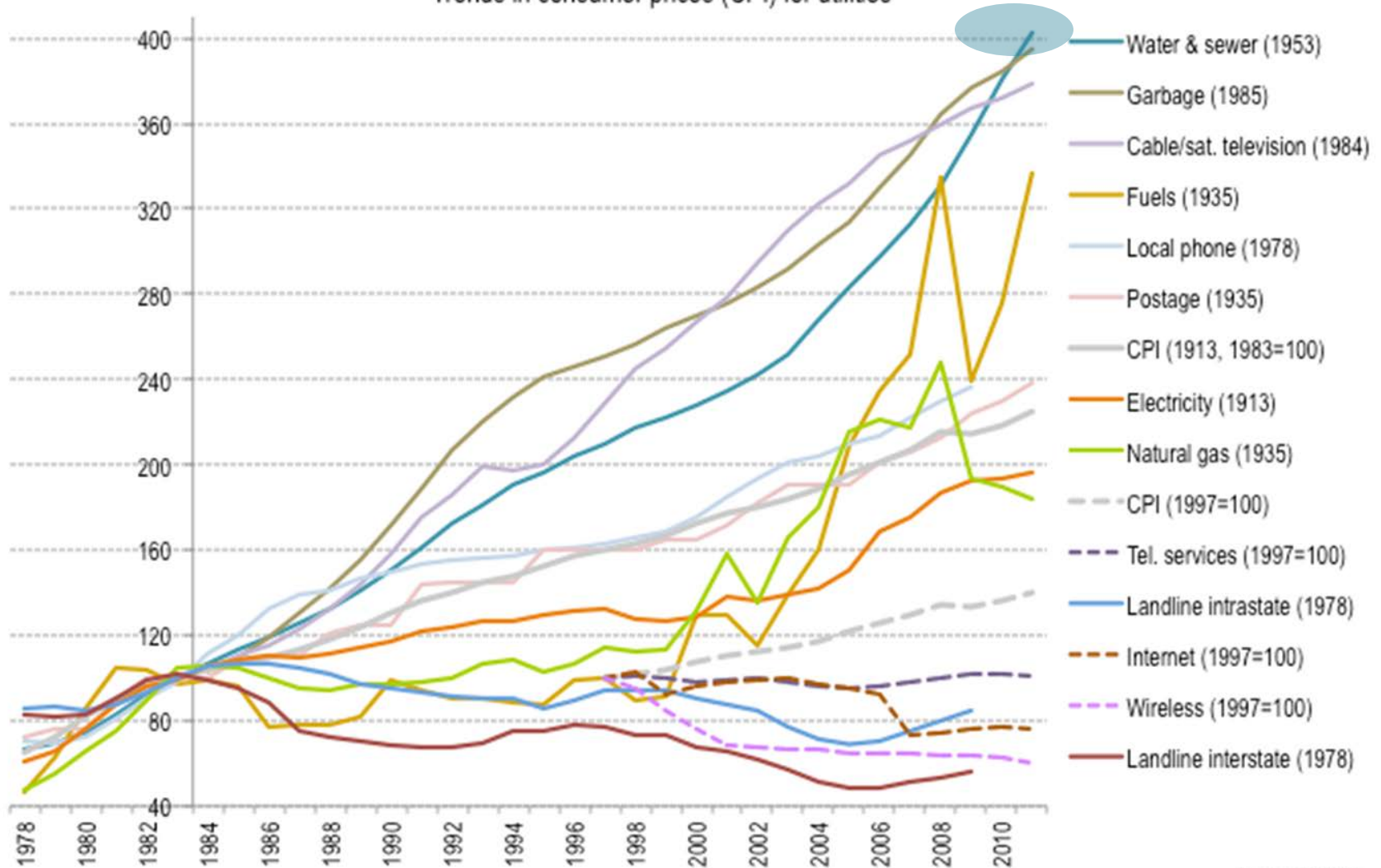


The Environment Has Changed

Then	Now
Sustained economic growth <ul style="list-style-type: none">• Strong growth in related revenues• Capacity charges and property taxes	Economic contraction/stagnation <ul style="list-style-type: none">• Sharp drop in related revenues• Capacity charges and property taxes
Increasing water demand <ul style="list-style-type: none">• Increasing population and number of homes• Warm, dry conditions in Southern California	Decreasing water demands <ul style="list-style-type: none">• Conservation• Prolonged decrease in economic activity• Increased rates• Wet weather
Availability of supplies <ul style="list-style-type: none">• Modest restrictions on imports• No real impact on exports	Scarcity of supplies <ul style="list-style-type: none">• Significant restrictions on imports• Uncertainty regarding exports
Low level of fixed commitments <ul style="list-style-type: none">• Modest debt service	Higher level of fixed commitments <ul style="list-style-type: none">• Significant debt service• Contracts to purchase water
Modest water rates <ul style="list-style-type: none">• Small annual increases	Higher water rates <ul style="list-style-type: none">• Larger annual increases• Ratepayer fatigue

CPI Trends for Utilities (U.S., BLS)

Trends in consumer prices (CPI) for utilities



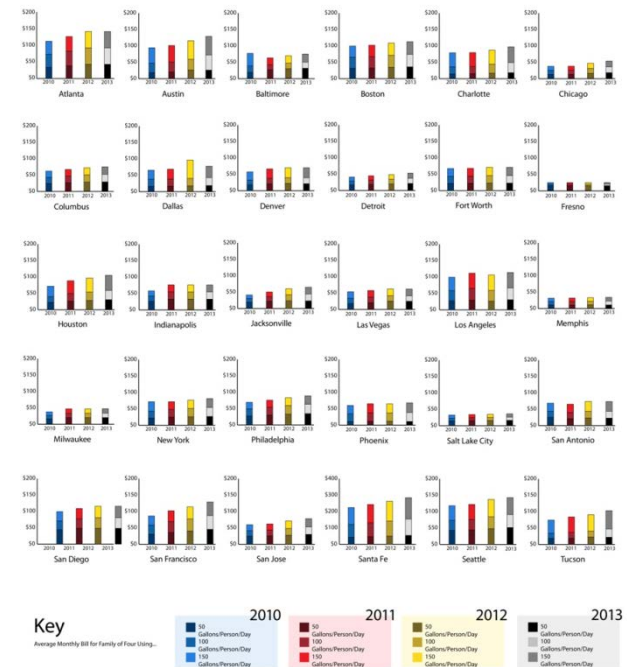
Water Bills Going Up Across the Country

The Price of Water 2013: Up Nearly 7 Percent in Last Year in 30 Major U.S. Cities; 25 Percent Rise Since 2010

WEDNESDAY, 05 JUNE 2013 08:00

Utilities tinker with rate structures designed to stabilize revenue.

Average Monthly Bill for a Family of 4



Source: www.circleofblue.org

What is Fiscal Sustainability?

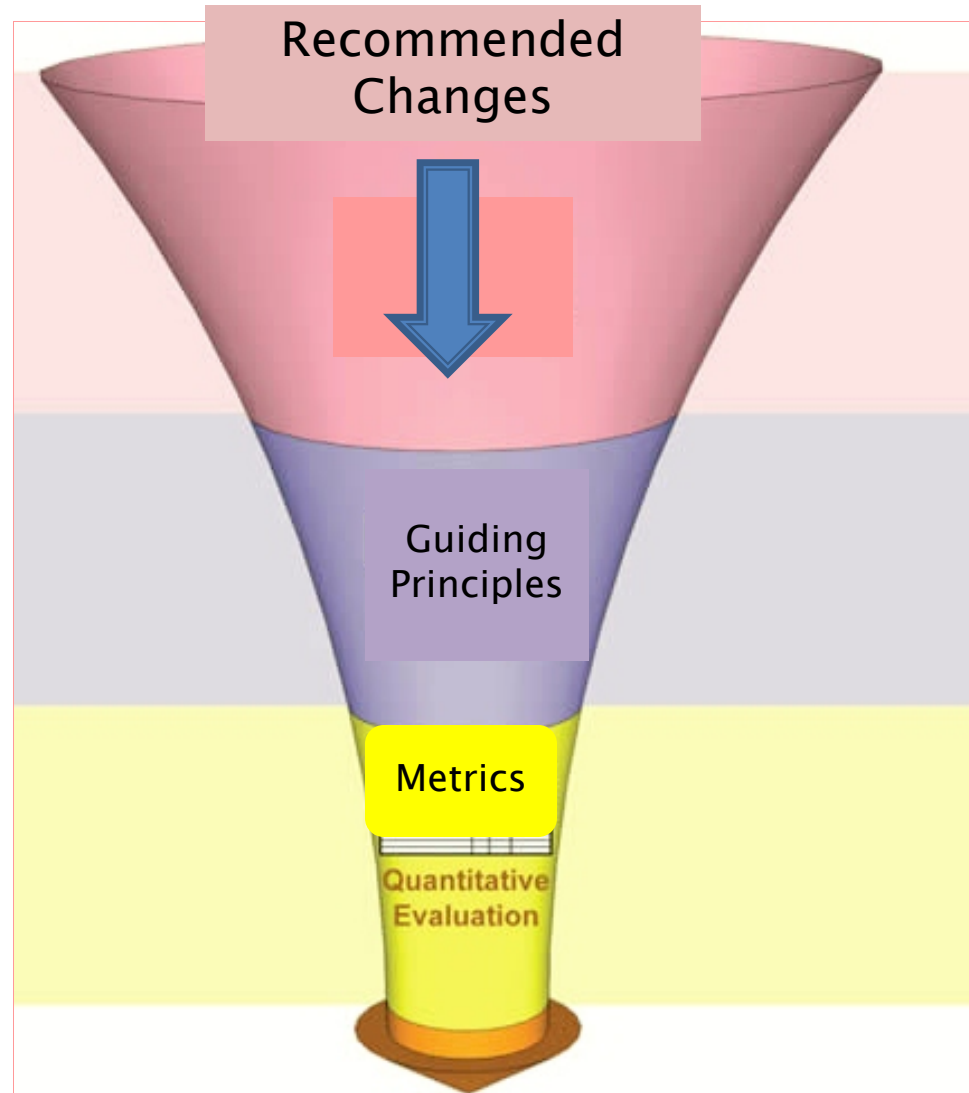
- ▶ No generally accepted definition – unique to each organization
- ▶ However, Government Accounting Standards Board (GASB) research in 2010 identified “8” common characteristics of Fiscal Sustainability:
 - Ability and willingness to generate sufficient future resources
 - Ability and willingness to maintain or improve public services
 - Ability and willingness to meet financial obligations and commitments
 - Achievement of intergenerational equity
 - Effects of fiscal interdependencies between various governments

GASB Research in 2010 (continued)

- Potential effects of the underlying economy
- Potential effects of changing demographics
- Implications of political ability and willingness to make decisions that will keep a government fiscally sound
- ▶ Fiscal Sustainability focuses on policies to manage long-term trends
 - Meeting upcoming annual revenue requirements each year is not considered fiscal sustainability

The Role of Guiding Principles in Fiscal Sustainability

- ▶ Changes to the rate structure or financial policies should contribute to financial sustainability
 - Guiding Principles define how
 - Metrics measure how well



Guiding Principles

The following Guiding Principles have been defined to aid when recommending new or changes to rates and charges structure, or financial policies, with the objective of ensuring the long term fiscal sustainability.

This recommendation shall...

- ▶ Contribute to maintain or better credit rating:
 - Maintaining a strong credit rating lowers interest cost, increases access to credit markets which gives greater flexibility to respond to market changes, and increases affordability
 - Fundamental Strengths are not cost driven and are a mixture of
 - Strong willingness to make tough rate decisions
 - Proven history of doing what you say you will do
 - Strong financial management and policies
 - Measured by the following metrics:
 - Debt Service Coverage Ratio (DSCR)
 - Reserve Policies
 - Cash on Hand
 - Strong Fixed Revenue to Fixed Cost %

Guiding Principles

- ▶ Adhere to Industry Cost of Service Principles
 - Must generate sufficient revenue to pay O&M expenses, costs of development and perpetuation of the system, and preservation of the utility's financial integrity (reserves, debt service coverage)
 - Benefits bear a fair, reasonable, and logical relationship to burdens
- ▶ Ensure all beneficiaries of services pay a fair share of costs
 - Nexus between level of service and cost of service
 - Availability of system and supply
 - Different customers generate different costs based on their pattern of use or demand. Each customer group pays it's own way – No free-ridership

Guiding Principles

- ▶ Provide Equity for all stakeholders
 - Fairness between and among stakeholders in the short and long-term
- ▶ Result in the consistent application of rate-setting and other financial policies
 - Decision makers have adopted strong rate-setting and financial management policies which support fiscal sustainability. These policies need be applied consistently in future decision making
- ▶ Support intergenerational equity:
 - Water infrastructure assets have very long useful lives, some estimated at 100 years, both current and future users benefit
 - There must be a proper funding mix of cash funding (existing users) and debt financing (future users) which results in a shared responsibility between current and future users

Guiding Principles

- ▶ Result in an appropriate level of fixed revenues for fixed obligations:
 - There should be a fixed revenue stream for a fixed obligation which takes into consideration reducing rate volatility, incorporating beneficiaries pay principles, member agency equity, and intergenerational equity
- ▶ Consider our dynamic environment:
 - Take into account the variability in long term weather patterns, supply availability and the changing nature of supply planning as well as future regulatory requirements

Guiding Principles

- ▶ Maintain or enhance your fundamental mission:
 - The fundamental mission is to provide its stakeholders with a safe and reliable water supply.
- ▶ Fulfill all Legal Requirements:
 - State legal cost of service requirements
 - Local Policies and Administrative Codes

Importance of Measuring Fiscal Sustainability

- ▶ Industry judges fiscal health on metrics
 - Credit ratings
- ▶ Modifications to rate structure must meet fiscal health tests
 - Fixed Revenue to Fixed Cost %
 - Fund Balances
 - Debt service Coverage Ratios
 - Other?
- ▶ Customer Equity is important factor
 - Among stakeholders and intergenerational equity

Measuring Fiscal Sustainability

- ▶ Not all indicators of Fiscal Sustainability can be easily measured
 - Equity is not formula driven
 - Will we know it when we see it?
 - Equity among member agencies
 - Inter-generational equity
 - What role does fairness play
 - Differs from equity
 - Ratepayer Affordability
 - Relationship to total indebtedness

Continuous Improvement

- ▶ Are there modifications to existing rates and charges that can help meet the financial challenges of tomorrow?
 - Costs of infrastructure investment and supply diversification
 - Recognition of standby benefits
 - Allocation of standby costs
 - Managed growth–related variability

Rate and Charge Objectives and What They Mean

- ▶ Cost efficiency
 - Relates to maintaining the lowest possible cost to ratepayers
- ▶ Predictable rates
 - Providing stable rates and charges for customers to effectively plan with
- ▶ Intergenerational equity
 - Helps ensure ratepayers that benefit from an asset pay for it

What Are Rate Setting Principles?

- ▶ Satisfy revenue requirements
 - Generate sufficient revenues to pay costs
 - Meet bond covenants and Board policies for debt service coverage and reserves
- ▶ Cost allocation
 - Costs are carefully allocated to rate categories
- ▶ Ratepayer equity
 - Ratepayers pay for the services they receive

Existing Rates & Charges

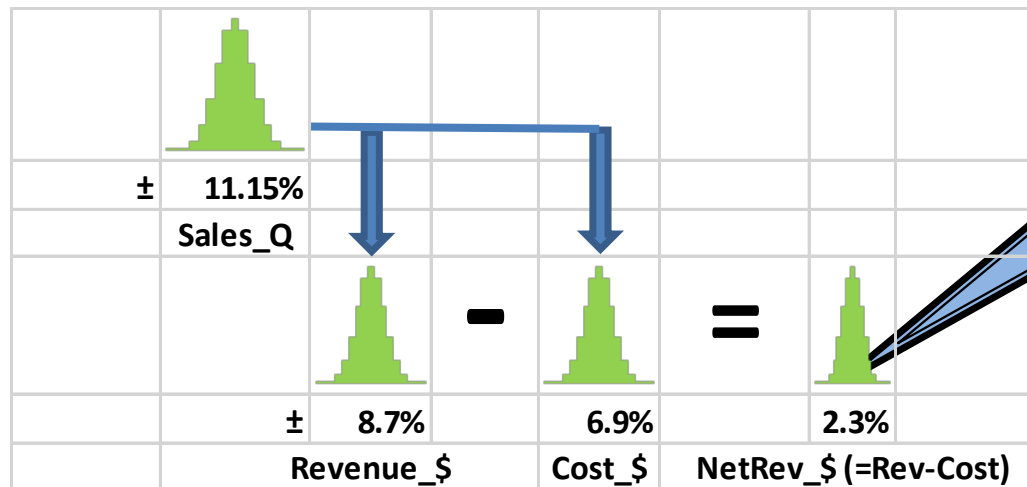
- ▶ Equity
- ▶ Reliability & Sustainability
- ▶ Transparency
- ▶ Balance of Administrative Burden
- ▶ Compliance with Local Policy and Legal Requirements

What is Net Revenue Volatility?

- ▶ Empirical view of Volatility: Definition in Finance
 - One year change
- ▶ Big *Scary* Question: How does sales variation affect the Authority's **Net Revenues** (Revenues minus Costs)
- ▶ Typically the more revenues collected on variable/commodity charges the more potential for revenue volatility (up and down)
 - Cost structure is an important factor
- ▶ Why?

Shape of Uncertainty Short Term

Sales Volatility,
standard deviation of $\approx 11\%$



Revenue = Fixed Revenue + Variable Revenue
or

*Revenue = Fixed Revenue + Volumetric Rate * Sales Volume*

Cost = Fixed Cost + Variable Cost
*Cost = Fixed Cost + Unit Cost_i * SupplyVolume_i*

$$= \text{Net Revenue} = \text{Revenue} - \text{Costs} \pm 2.3\%$$

Monte Carlo
Simulation
Results

Short Term
Uncertainty looks
manageable;
Don't Celebrate
Yet.

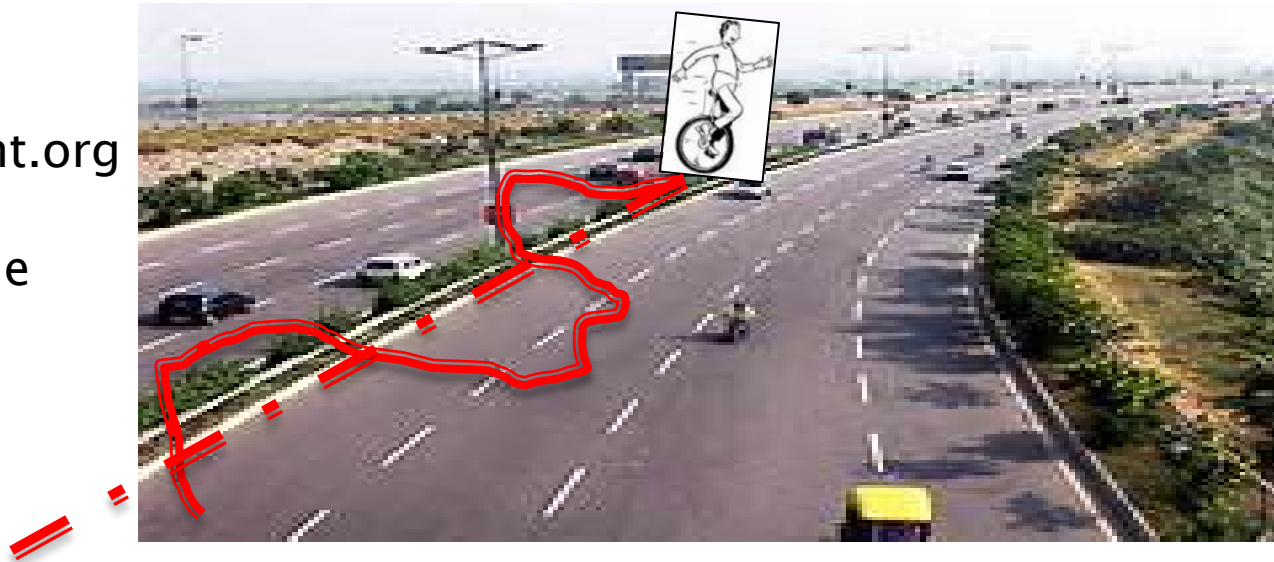
Long Term Risk– average outcome vs. likely outcomes

Flaw of Averages

- ▶ Fact 1 – Planning for the future is rife with uncertainties.
- ▶ Fact 2 – Most people are not happy with Fact 1 and prefer to think of the future in terms of average outcomes.
- ▶ Fact 3 – The “flaw of averages” states that plans based on average assumptions are, on average, wrong.
 - adapted from Savage (2012) Flaw of Averages

See probabilitymanagement.org

The cyclist is **safe** on the
average path



On average, the cyclist is **dead**.

Mitigating Revenue Risks from Volatility

- ▶ Fixed charges
 - Though fixed revenue to the Authority (recovered regardless of this year sales)
 - Member Agency can vary over time as sales level changes
- ▶ Reserves
 - Rate Stabilization Fund – provides an alternative revenue source to meet bond covenants
 - Size of fund is impacted with Net Revenue volatility
 - More volatility = More reserves required
- ▶ Contracts
 - Only if scheduled payments cover a significant portion of costs
 - Can serve the same purpose as fixed charges

Fixed Cost Definition

Fixed Costs are expenses that remain relatively unchanged throughout the year, irrespective of the volume of water produced. Because large up-front capital costs are required to build capacity for meeting demand, some traditional costing methods classify all system expansion costs as fixed and refer to these as demand costs

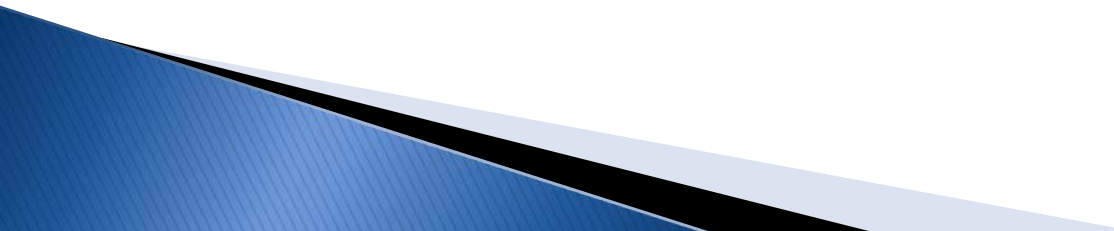
Dr. Chesnutt “Designing, Evaluating & Implementing Conservation Rate Structures”

Committed fixed costs are those fixed costs that are difficult to adjust and that relate to the investment in facilities, equipment, and the basic organizational structure of a firm.

“Financial Accounting Standards Board”

Cost Concepts—Fixed and Variable

Fixed versus Variable Costs—3 Points

1. Fixed costs do not directly vary with volume of water produced in the short term (example: plant, a pump)
 2. Variable (commodity) costs do (example: pumping costs, electricity, chemicals)
 3. Dividing line between fixed and variable critically depends on the time frame
- 

Fiscal Sustainability—A Work in Progress

Financial Viability—

Understands the full life-cycle cost of the utility and establishes and maintains an effective balance between long-term debt, asset values, operations and maintenance expenditures, and operating revenues.

Establishes predictable rates—consistent with community expectations and acceptability—adequate to recover costs, provide for reserves, maintain support from bond rating agencies, and plan and invest for future needs.

Source: *Effective Utility Management: A Primer for Water and Wastewater Utilities*, June 2008, USEPA, AMWA, APWA, NACWA, NAWC, WEF

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