Managing Financial Risk and Declining Demand

Washington Association of Sewer & Water Districts

Spring Conference

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FCS GROUP
Solutions-Oriented Consulting

Presentation Outline

1. Why Consumption is Declining
   - Potential Reasons
   - Conclusions
2. Managing the Financial Risk
   - Financial Planning
   - Reserve Policies
   - Rate Structure
   - System Planning

Is Consumption Declining?

- Regional Water Usage Below Expectations
- Anecdotal Information
  - Rate increases with no accompanying revenue increase
  - Population growth without accompanying demand and associated revenue growth

Regional Water Demand: CWA

Cascade Water Alliance
2004 Transmission and Supply Plan
September 29, 2005

Table ES.2 Projected Demand in Million Gallons per Day (MGD)

	2004	2009	2023	2050
Cascade Composite Forecast				
Average Day Demand	40.9	48.7	61.1	74.6
Maximum Day Demand	86.3	103.5	134.3	163.0
Maximum Week Demand	82.0	100.2	127.5	154.9
Financial Forecast				
Average Day Demand	40.9	45.2	55.5	67.9
Maximum Day Demand	86.3	96.0	119.6	146.3
Maximum Week Demand	82.0	91.2	113.6	139.0

Notes:
1. Demands include water to be supplied by Members' independent supplies and wholesale contracts.
2. Forecasted demand for Tukwila excludes the west city area currently served by Water District 125. However, future demands with the Seattle Rendering Plant are included in these projections.
3. Covington WD's agreement with TPU for TSSP water provides a firm summer-only supply of 12.64 MGD from June through October. The agreement does not include supply of TSSP water during any other time period (i.e. winter).

Regional Water Demand: CWA

Cascade Water Alliance
Water Demand Forecast Technical Memorandum
December 18, 2009

Table 8
Mean Water Demand Forecast Results (mgd)

Demand Forecast Scenario	2010	2020	2030	2040	2050	2060
No climate change, no regional demand contingency (baseline)	40.33	43.01	47.87	52.18	57.98	65.60
With climate change, no regional demand contingency	41.16	44.13	49.35	54.05	60.31	68.87
With climate change, with regional demand contingency	41.18	44.14	49.69	57.62	67.13	78.87

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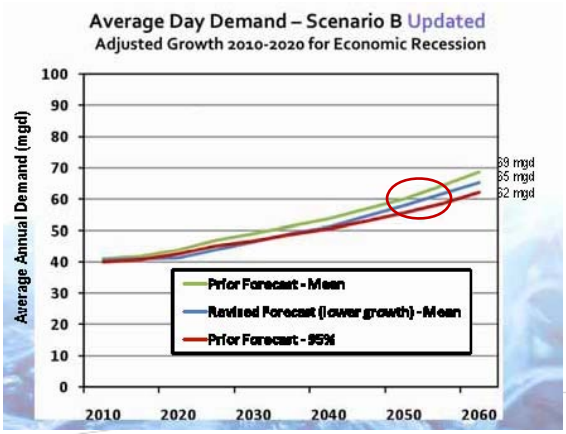
Regional Water Demand: CWA

Cascade Water Alliance
Connections Working Group Meeting
November 12, 2010



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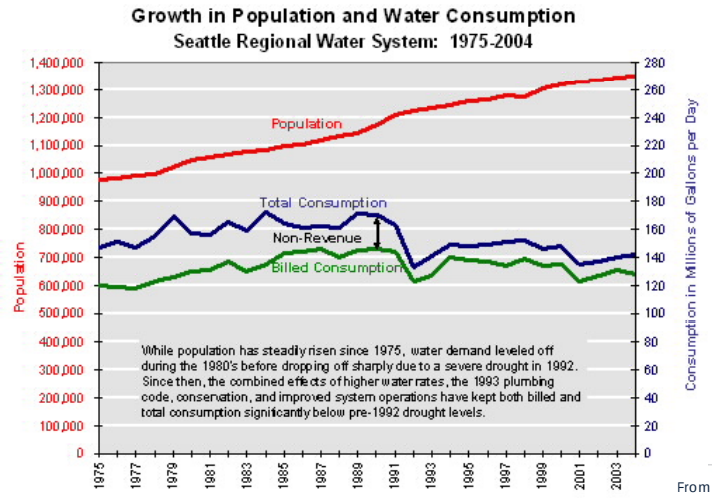
Regional Water Demand: SPU



From SPU website

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Regional Water Demand: TPU

Tacoma Water's residential per capita
water use has dropped as follows:

- 1990 – 92 gpd
- 1995 – 90 gpd
- 2004 – 83 gpd

2006 Tacoma Water Comprehensive Water System Plan Update

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Why Is Consumption Declining?

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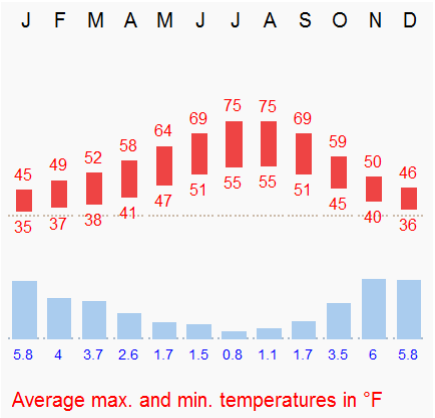
Reasons for Declining Demand

1. Weather
2. Economic Factors
   - The recession
   - Structural changes in commercial / industrial sector
3. Demographic Factors
   - Declining household size
   - Densification
4. Conservation
   - Imposed – Building code changes
   - Improved – Technology / efficiency
   - Incentivized – Pricing
   - Informed – Education programs

Typical Seattle Weather



Recent Peak Period Weather

for Western Washington

- 2011
  - Spring cool and wet
  - Average summer
  - Dry Autumn
- 2010 (source: NOAA)
  - Spring cool and wet
  - Average summer
  - September / October wet (2"– 5" above normal)
- 2009 (source: NOAA)
  - Spring unusually dry
  - Hot and dry summer (late July heat wave)
  - November quite wet

Weather – Demand Correlation

Cascade Water Alliance
Water Demand Forecast Technical Memorandum
December 18, 2009

"Temperature and precipitation are strong explanatory variables in predicting water use. Greater temperatures and lower precipitation results in greater water demands due to greater irrigation use and higher process water for industrial and commercial users."

"Climate Change alone adds approximately 3 mgd of water demand to the baseline forecast scenario by 2060"

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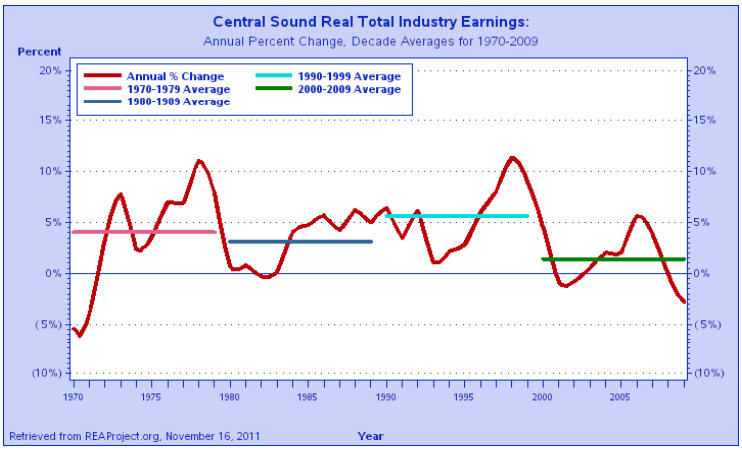
Economics: The Recession

Central Puget Sound Historical Real Industry Earnings



Central Sound Avg. Industry Earnings have fallen since 2007. Structural changes in earnings reflect a drop in AAGR from 5.7% in the 1990s, to 1.4% thus far this decade (2000-2009).

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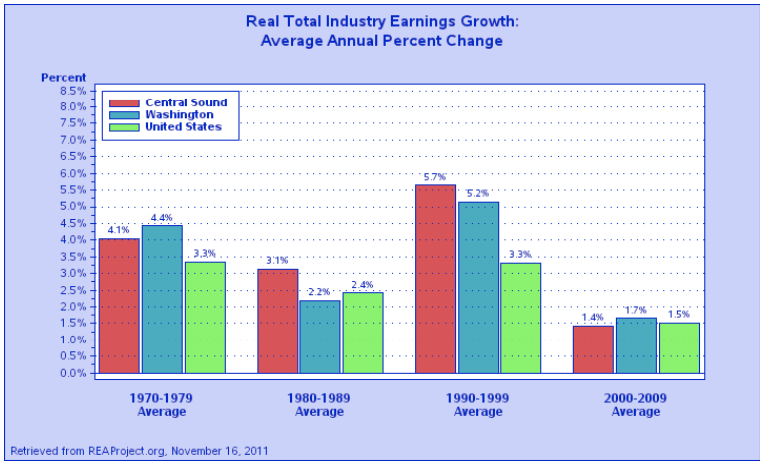
Economics: The Recession

Comparative Real Industry Earnings



Annual industry growth rates in the Central Sound exceeded the nation in the 1990s (5.7% vs. 3.3%); and fell below the nation from 2000-2009 (1.4% vs. 1.5%).

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Economics: The Recession

- Since January 2007, the State of Washington unemployment rate has risen from 4.6% to a peak of 10.2% in December 2009 and now rests at 8.2% (as of February 2012)

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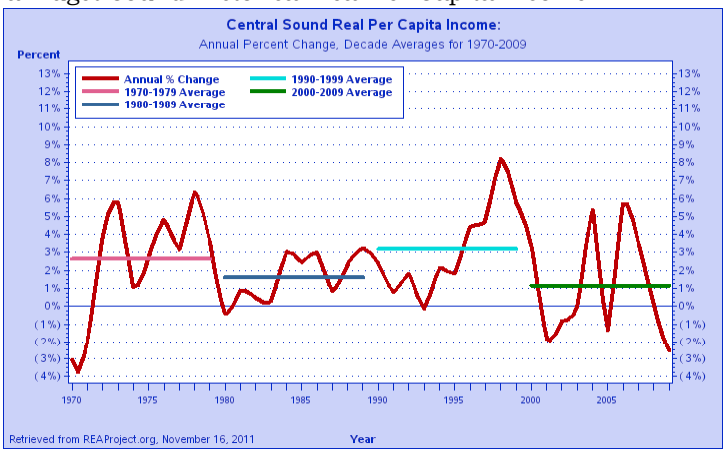
Economics: The Recession

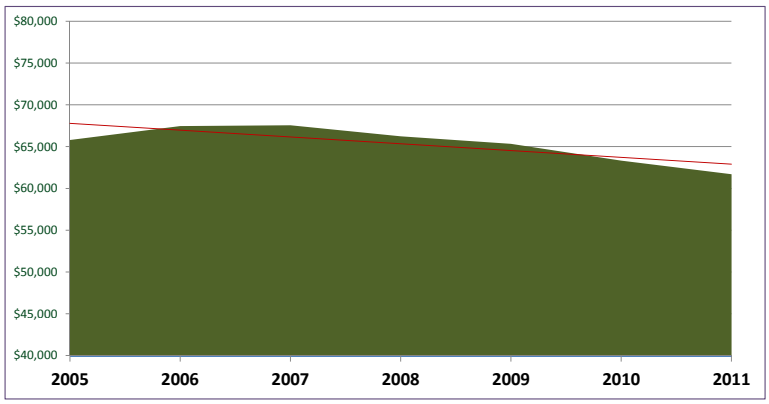
Central Puget Sound Historical Real Per Capita Income



Annual per capita income growth rates in the Central Sound fell from 3.2% in the 1990s to 1.16% thus far this decade (2000 – 2009).

Economics: The Recession

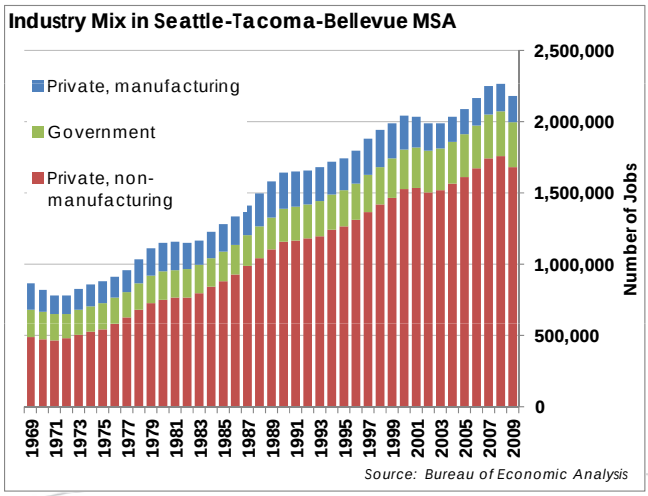
Central Puget Sound Median Household Income



Prelim. estimates by OFM (with inflation adjustments by FCS GROUP) indicate that Central Sound median household income declined by 8.7% between 2007 and 2011. Equates to a real annual decrease of nearly $5,900 per household since the 2007 peak.

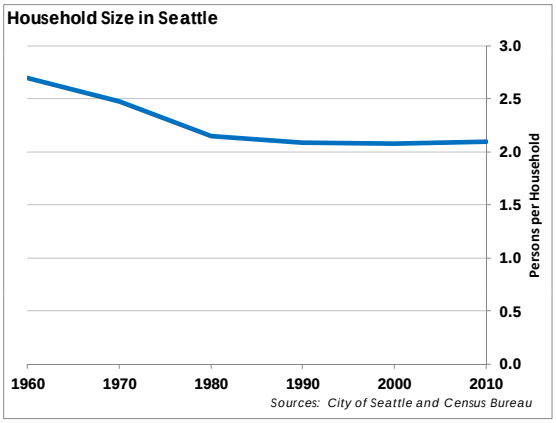
Economics: Structural Changes

Water-intensive (industrial) businesses represent a declining share of the economy in the Seattle area



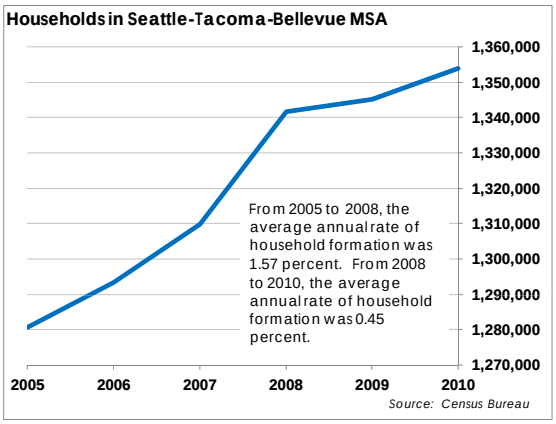
Demographics: Household Size

In the City of Seattle, household sizes declined from 1960 through 1990, but have remained relatively flat since.



Demographics: Household Size

In the Puget Sound area, household size has remained in a narrow range (2.50-2.54) since 2005, but household formations have slowed considerably.



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Demographics: Densification

- Residential development utilizes smaller lots, reducing landscaping and corresponding irrigation needs
- Nonresidential development is performed more water-efficiently

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Conservation: Code / Technology

- Energy Policy Act of 1992
  - ✓ Effective in 1994 (1997 for toilets)
  - ✓ A family living in a house built after 1994 uses 10-13 fewer gallons per day than the identical family in an older house ("North American Residential Water Usage Trends Since 1992," Table 5.3)
- New Technology (i.e., LEED standards)
  - ✓ New buildings can utilize 70-82% less water
  - ✓ And 40-46% less energy than older buildings

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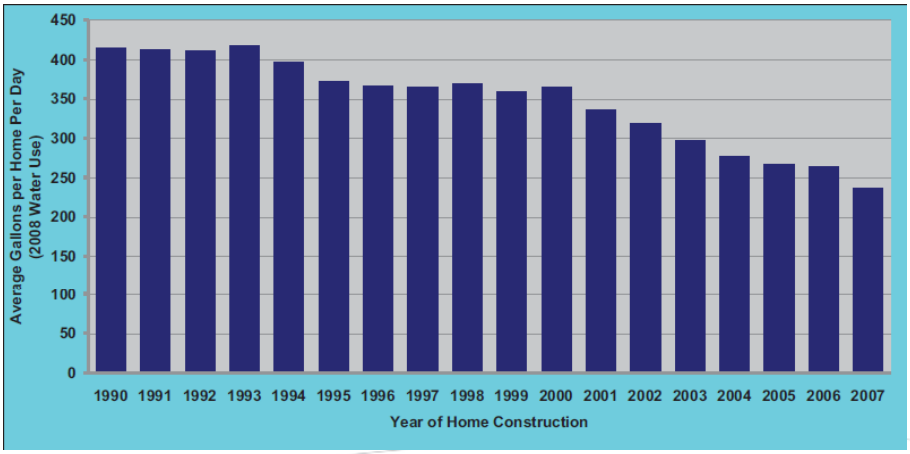
Correlation Between Year of Construction and Water Demands



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Conservation: Pricing

- Conservation based rates now commonplace
- Impact of total utility bill
  - Water
  - Wastewater
    - Rates have increased substantially
    - Usage-based residential rates
  - Stormwater
  - Other

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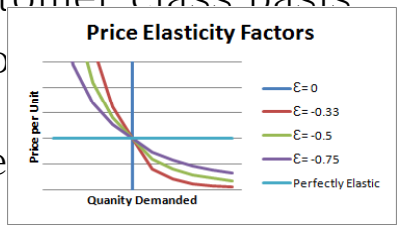
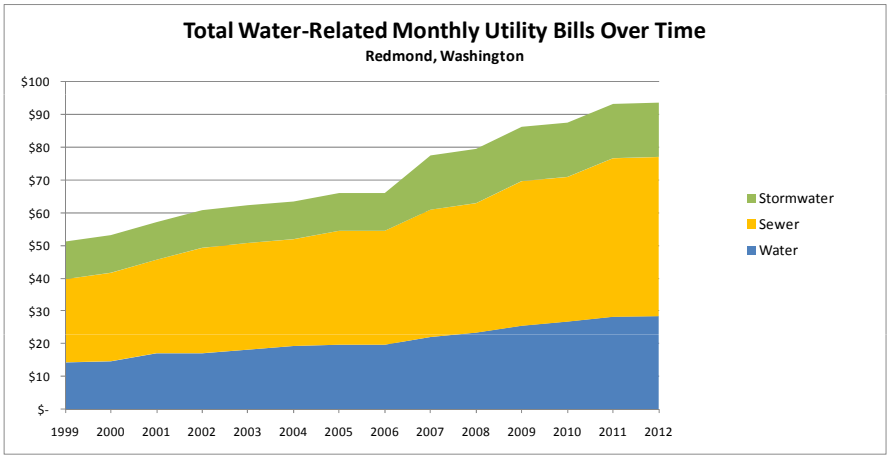
Price Elasticity

- Causation is impossible to prove, but…
- Price elasticity analysis must be considered on a customer class basis
- Price elasticity factors will differ within a class based usage le



Total Utility Bill Impacts



Total water-related utility bill has increased 83% since 1999 for average residential customer

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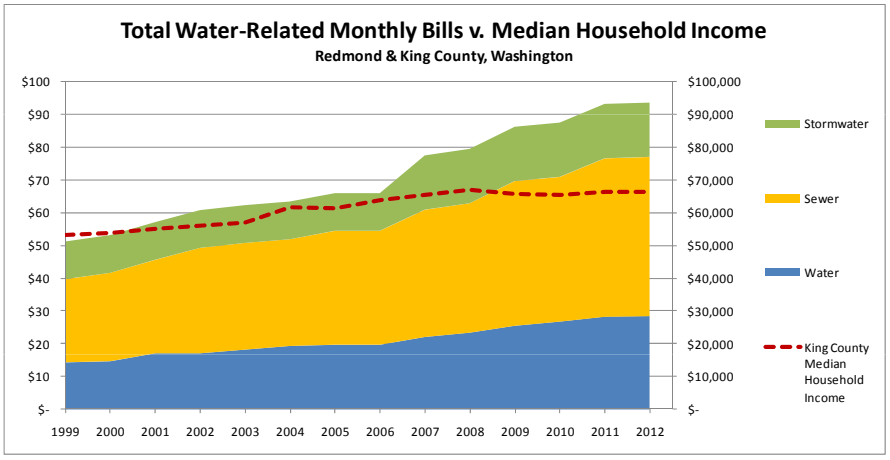
Utility Bills v. Median Household Income



Total water-related utility bill has increased 83% since 1999 for average residential customer; King County median household income has increased 25% over the same period (not inflation adjusted)

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Temporary or Permanent?

Reason	Assessment	Rate of Change
Weather		
• Short-term Cyclical	Temporary	Immediate
• Climate Change	Permanent	Long-range
Economic Factors		
• Recession	Temporary	Mid-term
• Structural Changes	Permanent	Long-range
Demographic Factors		
• Household Size	Permanent	Long-range
• Densification	Permanent	Long-range
Conservation		
• Code / technology	Permanent	Long-range
• Pricing	Permanent	Long-range
• Education	Permanent	Long-range

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Temporary or Permanent?

- Residential customers
  - Growth follows short-term economic cycles, along with long-term demographic patterns
  - Expect "slower growth" when economy picks up
  - Time needed for demand to stabilize after moving to "block or tiered rates"
- Industrial & Non-Res. customers
  - Commercial / Industrial changes likely to continue
  - Technology will lead to even more efficiencies & declines in customer usage
  - May allow deferral of major capital projects

Conclusion

Financial risk factors are a mix of:

▪ Temporary	▪ Immediate
▪ Permanent	▪ Mid-term
	▪ Long-range

Management of financial risk must be holistic and comprehensive.

Managing Financial Risk

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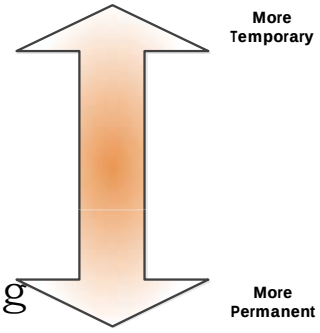
Managing Financial Risk

Strategies for Managing Financial Risk:

1. Fiscal Policies
2. Rate Structure
3. Long-Term Financial Planning
4. System Planning



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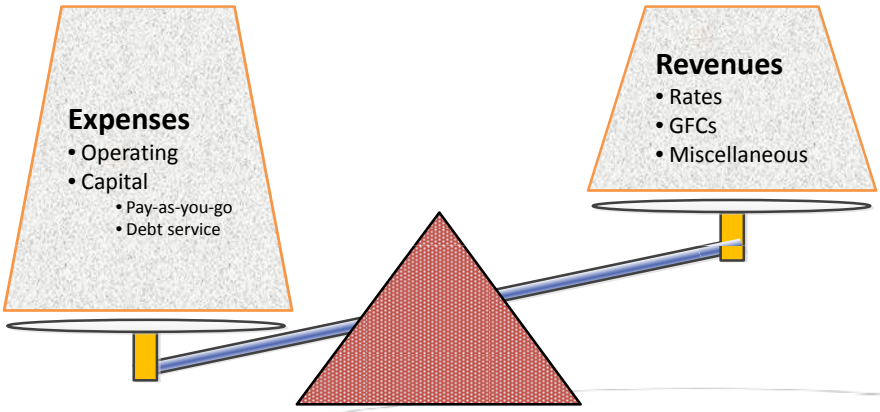
What is Financial Risk?



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Fiscal Policies Review

- Operating
  - Covers temporary cash flow deficiencies due to timing of revenues and expenditures
- Rate Stabilization
  - Protects against unexpected multi-year fluctuations
- Capital Funding Strategy
  - Bonds versus Pay-As-You-Go
  - Reserves
  - Replacement Funding
- Policy Debt Coverage

Policy recommendations must be tailored to agency specific benchmarks and needs

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Reserve Policies

- Reserve policies must be tied to system costs and revenue and expenditure fluctuations
- Operating reserve targets should be "right sized" based on rate structure attributes
- *Increasing Operating or Capital reserve "cushion" will mitigate short-term impacts, but generally leave long-term, structural impacts*

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Rate Structure Attributes

- Use pricing as the mechanism to encourage appropriate water usage
  - Rewards conservation and penalizes water wasters
- Pricing structure recognizes "essential" vs. "discretionary" usage
  - Targets summer peak/irrigation usage
  - Protect residential indoor usage and commercial usage
- Fixed and variable rate components
  - Many / most utility costs are fixed (capital, labor, etc.)
  - Most rate structures apportion a greater share of cost recovery to volumetric charge

The strength of conservation incentives must be balanced against the need / desire for revenue stability

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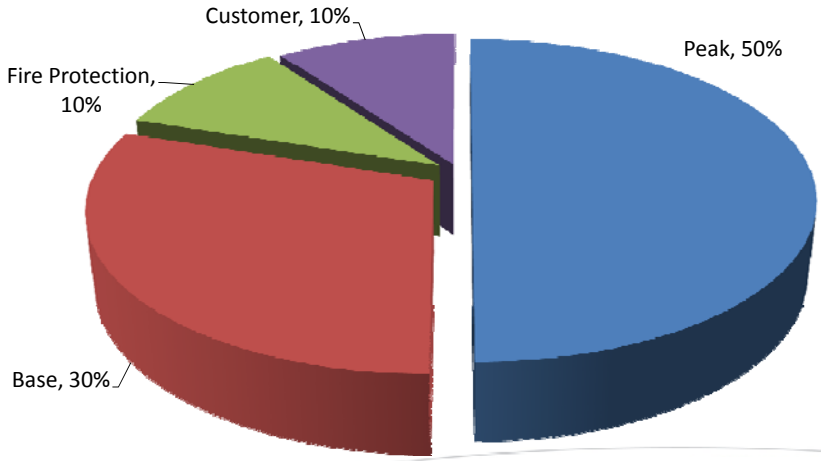
Cost of Service Allocation Result



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Discretion in Rate Design

- $ Customer: cost of administration and billing
- $ Base: all in the usage (per ccf usage)
- $ Peak: in the fixed charges (per meter capacity equivalent) and the usage charges (per ccf usage)
- $ Fire: all in the fixed charges (per meter capacity equivalent)

This mix can be adjusted, and remain consistent with "cost-of-service"

Financial Planning Objectives

- Incorporate long-term operating & capital needs
- Evaluate financial impacts of CIP alternatives
- Evaluate impact of various growth scenarios
  - Uncouple customer and demand "growth"
  - Uncouple customer and revenue "growth"
- Maintain adequate fund reserves
- Understand consequences of change

Financial plan serves as a roadmap for funding operating & capital programs, and maintaining long-term financial health

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System Planning

- Revisit planning assumptions
  - Uncouple growth and demand
  - Uncouple growth and revenue
- Develop capacity-driven capital improvement schedules – not date-driven
  - Projects for growth can be delayed

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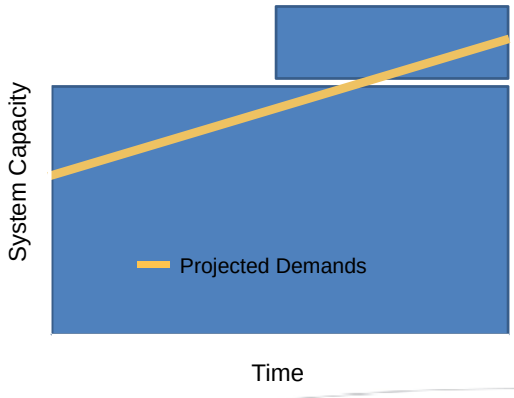
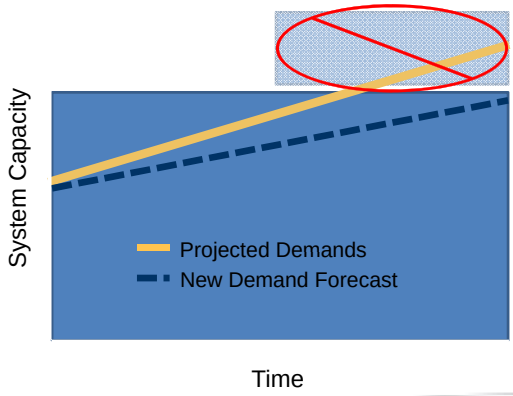
Deferral of Capital Expenditures



Deferral of Capital Expenditures



A Look At the Water Industry

Past	Present	Future
Where Were We?	Where Are We?	Where Are We Going?
▪ Assumed steady increases in water demands and wastewater flows ▪ Focus on short-term behavioral impacts ▪ Augment supplies and capacity in anticipation of growth	▪ Declining per capita water demand ▪ Re-evaluating system plans and demand forecasts ▪ Better understanding of impact of education and price elasticity	▪ Integrated system planning ▪ Predictive and risk based modeling ▪ Modular system planning ▪ Integrated capital and O&M to extend asset lives