



**DISTRICT OF COLUMBIA  
WATER AND SEWER AUTHORITY**

**Board of Directors**

*DC Retail Water and Sewer Rates Committee*

*Tuesday March 25, 2014*

9:30am

1. **Call to Order** .....Alan Roth, Chairman
2. **Integrated Planning Framework Affordability Presentation (Attachment A)** .....Alan Karnovitz
3. **FY 2015 Cost of Service Study Presentation (Attachment B)** ..... Jon Davis, Consultant
4. **Retail Water and Sewer Rates Committee Workplan** ..... Mark Kim
  - **FY 2014 Proposed Retail Rates Committee Workplan (Attachment C)**
5. **Other Business** ..... Mark Kim
6. **Executive Session**
7. **Agenda for June 24, 2014 Committee Meeting (Attachment D)** .....Alan Roth, Chairman
8. **Adjournment**

**FOLLOW-UP-ITEMS – DC Retail Water and Sewer Rates Committee Meeting (January 25, 2014) - None**



## DC Retail Water and Sewer Rates Committee

# Affordability Analysis of DC Water's Capital Improvement Program

March 25, 2014



# Introduction

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## DC Water performed an affordability analysis to assess:

- Annual sewer rate increases
  - Status Quo CIP (DC Water's current Capital Improvement Program)
  - Modified CIP (for proposed CSO consent decree modification)
- Financial impacts to low income households
  - Conventional approach based on city-wide median household income (MHI)
  - Alternative approach taking into account DC's household income distribution and cost of living



# Traditional Affordability Analysis

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## Status Quo CIP will result in sewer rate increases to the entire customer base over the next 20 Years

- From 2011-2013, sewer bills increased 35%
- Average annual residential bill projected to increase from \$607 in 2015 to \$952 in 2020, and to \$1,623 by 2030
- Financial impact to poor and minority households will be significant over time, especially if household income growth remains stagnant

**EPA guidance states that sewer bills exceeding 2% of MHI would signal a “*large economic impact*” on residents**

# Skewed Income Distribution in DC

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## Traditional measures of affordability do not capture accurately the financial burden on poor and minority households

- Household income distributions are skewed in Washington, DC<sup>1</sup>
  - Mean income approximately \$96,100
  - Median income approximately \$62,000
  - Top 5 percent of DC households have a mean income of \$500,031
  - Lowest 20 percent of DC households have a mean income of \$9,631



1. Household Income data from U.S. Census; American Community Survey 2011.

# High Cost of Living in DC

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**Unadjusted income underestimates burdens due to high level of expenditures for non-discretionary spending in high cost cities such as Washington, DC<sup>1</sup>**

- In 2012, DC was ranked the 8<sup>th</sup> most expensive city in the US
- Cost of living index 144.7
- The primary drivers of DC's high cost of living include: (1) housing; (2) transportation; (3) food; and (4) utilities



1. Council for Community and Economic Research.

# Alternative Measures of Affordability

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**Employing a more detailed breakdown of household incomes and expenditures better illustrates how rate increases burden low income households**

- Quantifies impacts for households at different income levels
- More realistically predicts level of income required for “vital” or “non-discretionary” household expenditures

# Comparison of Alternative Approaches

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## Affordability analysis evaluated three main scenarios

- ***Scenario 1: Status Quo CIP***
  - Scenario 1a: Median household income (MHI)
  - Scenario 1b: Unadjusted upper limit of the second quintile household income
  - Scenario 1c: Adjusted upper limit of the second quintile household income

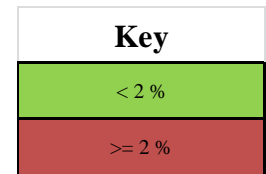
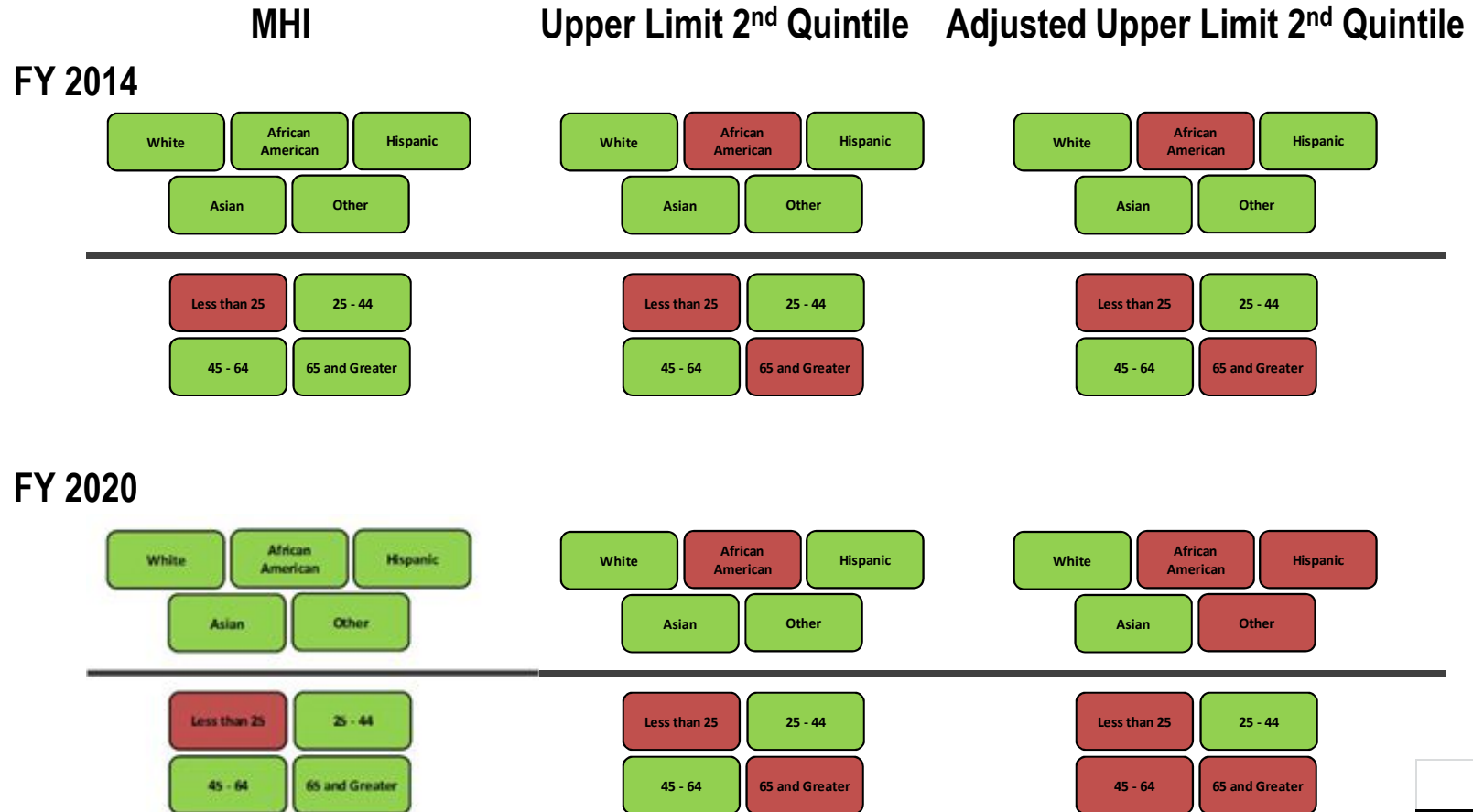


# Comparison of Alternative Approaches

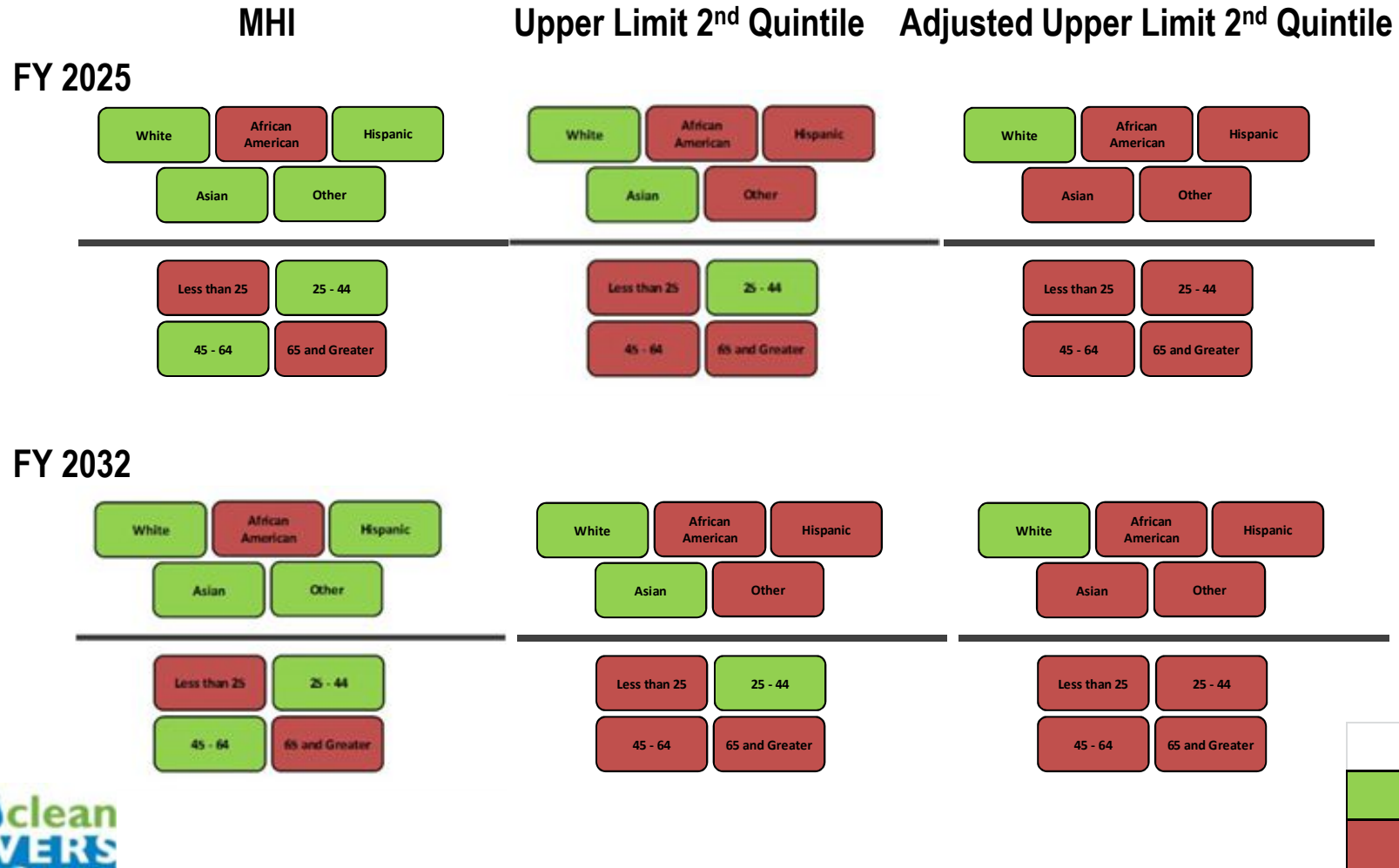
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- ***Scenario 2: Modified CIP (via Integrated Planning Framework)***
  - Scenario 2a: Upper limit of the first quintile household income
  - Scenario 2b: Upper limit of the second quintile household income
  
- ***Scenario 3: Modified CIP and COLA (Cost of Living Adjustment)***
  - Scenario 3a: Median household income (MHI)
  - Scenario 3b: Adjusted upper limit of the first quintile of household income
  - Scenario 3c: Adjusted upper limit of the second quintile of household income

# Scenario 1 – Demographic Analysis

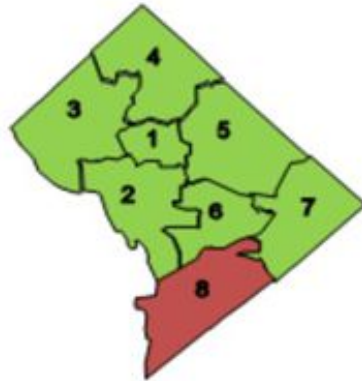


# Scenario 1 – Demographic Analysis

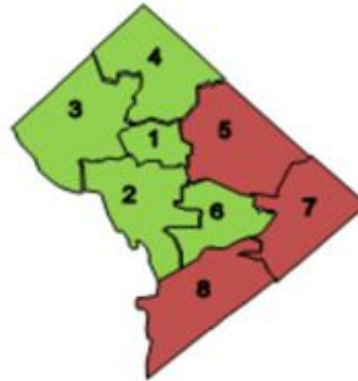


# Scenario 2 – Geographic Analysis

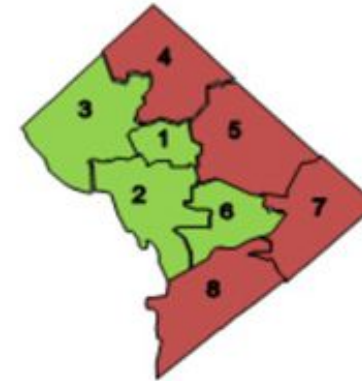
FY 2014



FY 2020



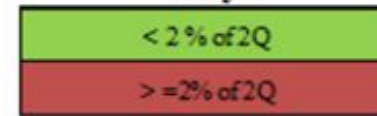
FY 2025



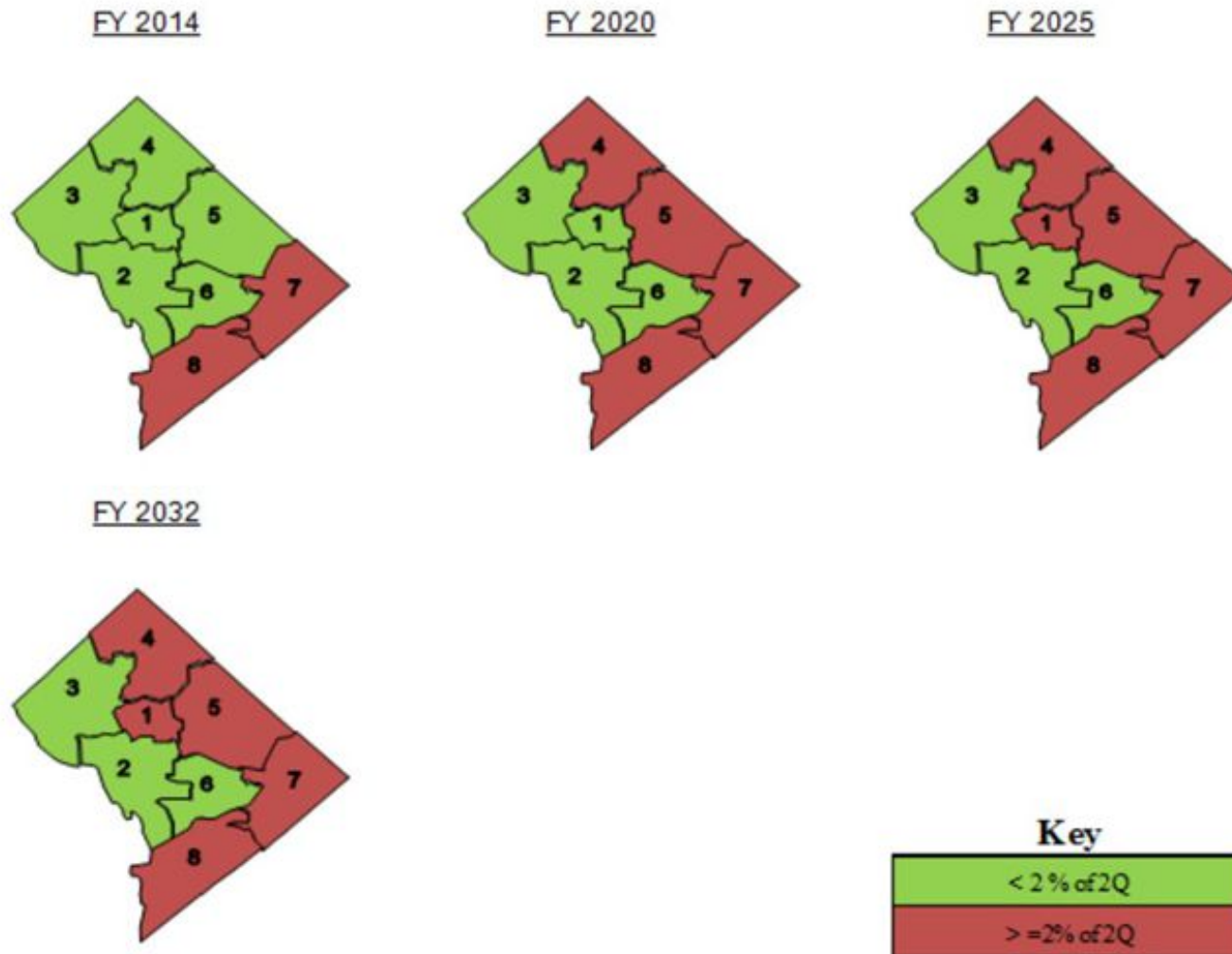
FY 2032



**Key**



# Scenario 3 – Geographic Analysis



# Conclusions

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- Under the Status Quo CIP, residential sewer bills are projected to continue to increase substantially over the next 20 years
- The traditional method of measuring affordability using citywide MHI does not fully capture the true impact on low income households
- An alternative method using 2% of the cost of living adjusted income for the upper limit of the 2<sup>nd</sup> quintile more accurately predicts the “true effect” of residential sewer bills on low income populations
- A modified CIP that defers certain capital costs related to DC Water’s Clean Rivers Project (and implements Green Infrastructure solutions) will delay and ameliorate affordability issues, but will not eliminate them entirely



# APPENDIX



# Results of Scenarios 1A, 1B and 1C

	Sewer Increase	CRIAC Increase	Capital Outlay	Debt Service Coverage <sup>1</sup>	Evaluation Against MHI	Scenario 1B Evaluation Against Upper Limit of Second Quintile	Scenario 1C Evaluation Against Adjusted Upper Limit of Second Quintile
FY 2014	na	na	\$ 319,662,309	1.44	0.80%	1.05%	1.51%
FY 2015	15.0%	25.0%	\$ 407,134,141	1.43	0.91%	1.21%	1.73%
FY 2016	10.0%	15.0%	\$ 339,041,787	1.36	0.98%	1.32%	1.89%
FY 2017	10.0%	10.0%	\$ 259,770,479	1.40	1.04%	1.42%	2.03%
FY 2018	8.0%	10.0%	\$ 368,053,939	1.42	1.09%	1.50%	2.16%
FY 2019	8.0%	10.0%	\$ 359,799,784	1.35	1.15%	1.60%	2.29%
FY 2020	10.0%	10.0%	\$ 283,881,143	1.33	1.23%	1.72%	2.47%
FY 2021	10.0%	10.0%	\$ 319,123,724	1.38	1.31%	1.85%	2.65%
FY 2022	10.0%	10.0%	\$ 398,495,357	1.43	1.39%	1.99%	2.86%
FY 2023	5.0%	10.0%	\$ 469,116,343	1.40	1.44%	2.08%	2.98%
FY 2024	5.0%	10.0%	\$ 392,795,815	1.34	1.49%	2.17%	3.11%
FY 2025	5.0%	10.0%	\$ 311,209,766	1.33	1.54%	2.27%	3.25%
FY 2026	5.0%	10.0%	\$ 234,420,220	1.39	1.60%	2.37%	3.40%
FY 2027	2.0%	3.0%	\$ 245,444,120	1.42	1.59%	2.38%	3.41%
FY 2028	2.0%	3.0%	\$ 229,722,712	1.42	1.57%	2.39%	3.42%
FY 2029	2.0%	3.0%	\$ 219,531,387	1.41	1.56%	2.40%	3.43%
FY 2030	2.0%	3.0%	\$ 224,415,459	1.37	1.55%	2.40%	3.45%
FY 2031	2.0%	3.0%	\$ 194,160,017	1.31	1.54%	2.41%	3.46%
FY 2032	2.0%	3.0%	\$ 199,057,478	1.25	1.53%	2.42%	3.47%

1. Debt service coverage needs to be above 1.2 to satisfy minimum requirement  
 CRIAC refers to the Clean River Impervious Area Surface Charge







# Rate Structure Alternatives

March 25, 2014



Attachment B

# Table of Contents

- Fixed vs. Variable Rate Charges
- Rate Structure Benchmarking
- Alternative Rate Structure
- Next Steps – 2015 Cost of Service Study

# Fixed vs. Variable Charges

- Typically, water and sewer utilities' costs are largely fixed while revenue is largely variable
- DC Water's fixed revenue components have, historically, been below 30% of total revenue
- National and regional benchmarking shows there is no consensus on the level of a customer bill that should be fixed
- By 2015, DC Water's average customer bill will be 27% fixed, within the median range for large national utilities

# Primary Charge Types

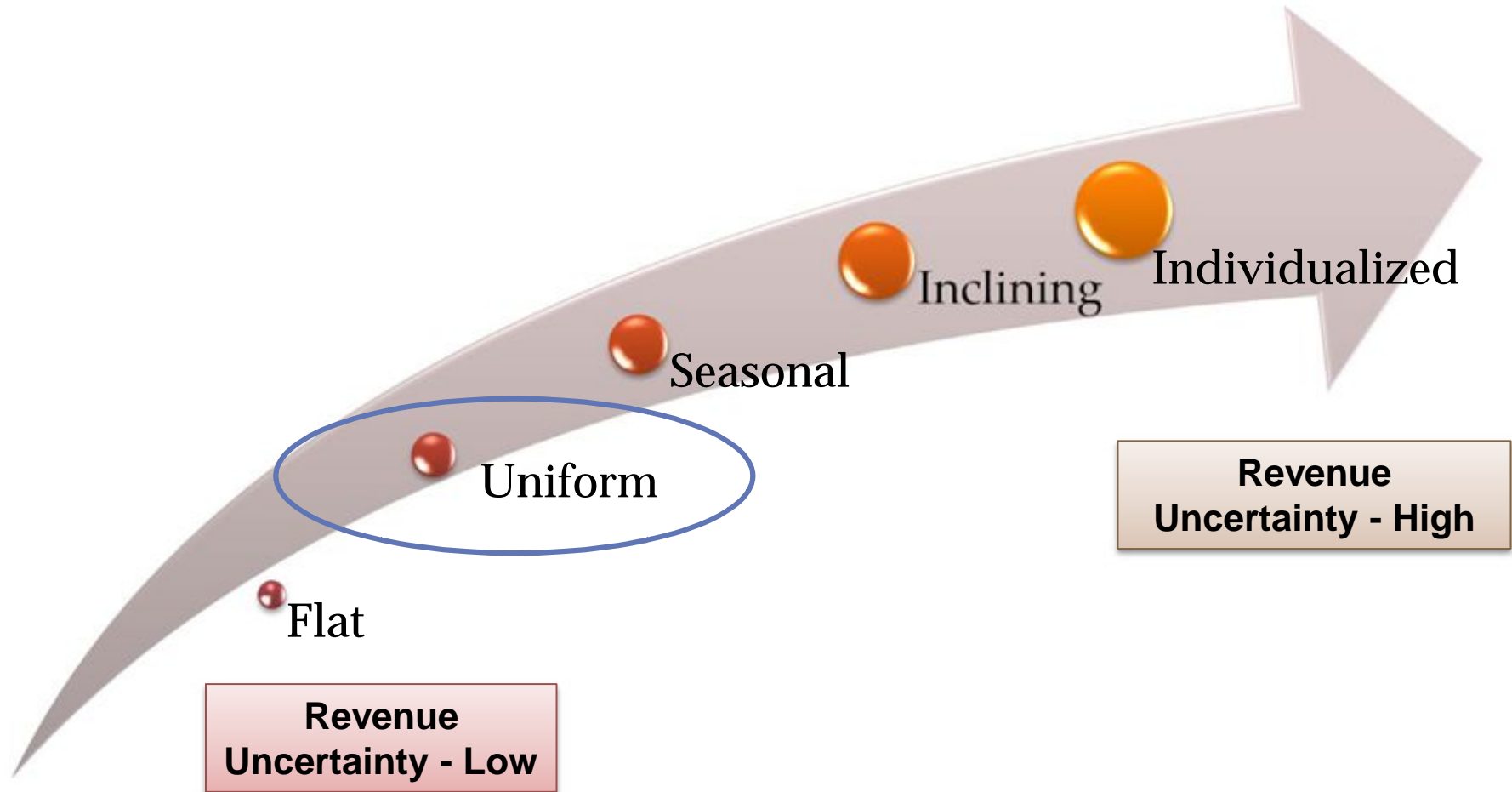
## Fixed Charges

- Invariant with customer water usage
- Cost of service fixed charges reflect customer related costs
- Fixed charges may include portion of capital costs

## Variable Charges

- Vary with amount of water used
- Recover utility costs that vary with customer usage patterns

# Rate Structure Evolution



# Rate Structure Benchmarking

Utility Rate Structure	DC Water	New York City	Chicago	Philadelphia	Baltimore	Boston	WSSC Washington Suburban	Charlotte-Mecklenburg	Fairfax County
Water Rate (\$/Ccf)	\$3.61	\$3.58	\$2.48	\$3.71 - \$2.09	\$4.08 - \$1.73	\$4.66 - \$5.84	\$2.21 - \$5.06	\$1.68 - \$6.76	\$1.71 - \$2.58
Water Rate Structure	Uniform	Uniform	Uniform	Declining Block	Declining Block with minimum	Inclining Block	Inclining Block	Inclining Block for Residential	Inclining Block (Seasonal)
No. of Blocks				4	3	6	16	4	
Differential				-44%	-58%	+25%	+129%	+302%	
Sewer Rate (\$/Ccf)	\$4.41	\$5.69	\$2.38	\$2.62	\$4.94	\$6.04 - \$7.32	\$3.19 - \$7.70	\$4.46	\$4.90
Sewer Rate Structure	Uniform	Uniform	Uniform	Uniform	Uniform with minimum	Inclining Block	Inclining Block	Uniform	Uniform
Other Fees and Charges	Graduated Metering Fee, Impervious Area Charge	None	None	Graduated Meter Fee, Impervious Area Charge	Impervious Area Charge	None	Account Maintenance Fee	Base Charge, Availability Fee, Impervious Area Charge	Graduated Service Charge
Fixed Percentage	24%	0%	0%	40%	47%	0%	6%	30%	12%



# Inclining Block Rate Structure

Rate Structure	Pros	Cons
<ul style="list-style-type: none"> <li>Inclining Block - Volumetric rate increases as usage increases (example: Boston)</li> </ul>	<ul style="list-style-type: none"> <li>Higher revenue recovery from large volume customers and lower revenue recovery from low volume customers</li> </ul>	<ul style="list-style-type: none"> <li>Increased revenue stability risk</li> <li>Tier differentiation must be data driven</li> </ul>

- Customer impacts vary significantly based on:
  - Number of blocks
  - Differential between blocks
  - Break points between blocks
  - Application to customer classes
- Designed to be revenue neutral
- Typically shift costs away from low volume customers toward high volume customers
- Increase revenue volatility by assigning higher value to discretionary consumption

# Objectives for the 2015 Cost of Service Study

- Detailed analysis of customer usage
- Revenue sufficiency assurance
- Adherence to cost of service principals and DC Water policies
- Evaluation of alternative rate structures
- Evaluation of affordability alternatives
- Identification of alternative charges to relieve pressure on rates



# Appendix

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# High Strength Surcharges

- 2012 Cost of Service Study determined additional costs that could be assessed to a subset of high strength dischargers
- Who might get charged?
  - Existing, monitored industrial customers and waste haulers (small revenue potential)
  - Commercial Groups (moderate revenue potential)

# Development Impact Fees

- Levied on new and existing customers that wish to initiate or expand service
- Steps to investigate
  - Benchmark regional methodologies and fees
  - Calculate appropriate fees
  - Identify an efficient method for assessing and collecting fees
  - Moderate revenue potential

FY 2014 Proposed Committee Workplan			
Objective/Activities/Task	Date of Activity	Completed	Responsible Department

1. Develop Realistic Retail Rate Revenue Projections and Alternative Retail Revenue Sources			
<ul style="list-style-type: none"> <li>a. <i>Propose and establish Retail Rates in FY 2015</i> <ul style="list-style-type: none"> <li>i. Budget and Rate Proposal Briefing following Board meeting</li> <li>ii. RRC Committee recommendation</li> <li>iii. Board approval</li> <li>iv. Publish Proposed Rates in DCMR</li> <li>v. Public Outreach</li> <li>vi. Public Hearing</li> <li>vii. Committee recommendation on FY 2015 rates</li> <li>viii. Board Approval on FY 2015 rates</li> <li>ix. Publish Final Rates in DCMR</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>November 7, 2013</li> <li>November 19, 2013</li> <li>December 2013</li> <li>January 17, 2014</li> <li>April 2014</li> <li>May 14, 2014</li> <li>June 2014</li> <li>July 2014</li> <li>August 2014</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>Rates and Revenue</li> <li>General Counsel</li> <li>External Affairs Board Secretary</li> <li>General Counsel</li> </ul>

2. DC Water Affordability			
<ul style="list-style-type: none"> <li>a. <i>CAP &amp; SPLASH Updates (Expansion and/or methodology)</i> <ul style="list-style-type: none"> <li>i. Explore CAP water conservation options</li> <li>ii. Explore SPLASH options</li> </ul> </li> <li>b. Negotiation with EPA over CSO Consent Decree                             <ul style="list-style-type: none"> <li>i. Integrated Planning Framework (IPF) Overview of Affordability</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>January 28, 2014</li> <li>January 28, 2014</li> <li>March 25, 2014</li> </ul>	<ul style="list-style-type: none"> <li>√</li> <li>√</li> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>Rates and Revenue</li> <li>Customer Service</li> <li>Customer Service</li> <li>DETS</li> </ul>

3. 2015 Cost of Service Study			
<ul style="list-style-type: none"> <li>a. <i>Rate Structure Alternatives</i></li> <li>b. <i>Customer Segmentation water volumetric rates by customer class with differentiation based on peaking characteristics</i></li> <li>c. <i>Re-Development Impact Fee</i></li> <li>d. <i>High Strength Rate Alternatives</i></li> </ul>	<ul style="list-style-type: none"> <li>March 25, 2014</li> <li>Spring 2014</li> <li>Spring 2014</li> <li>Spring 2014</li> </ul>	<ul style="list-style-type: none"> <li>√</li> </ul>	<ul style="list-style-type: none"> <li>Rates and Revenue</li> <li>Rates and Revenue</li> <li>Rates and Revenue</li> <li>Rates and Revenue</li> </ul>

FY 2014 Proposed Committee Workplan			
Objective/ <i>Activities</i> /Task	Date of Activity	Completed	Responsible Department
4. Delinquent Accounts			
a. <i>Soldiers Home Negotiations</i>	Monthly		General Counsel
5. Strategic Plan			
a. Develop Alternative Revenue Sources and Achieve Realistic Revenue Projections (DC Water Strategic Plan Framework)	On-going updates to Committee		Rates and Revenue
i. <i>Identify and evaluate potential revenue generating initiatives annually</i>			
6. DCGIS FY 2014 Flyover			
a. <i>Update Committee on FY 2014 Flyovers</i>	Summer 2014		Customer Service



D.C. WATER AND SEWER AUTHORITY  
BOARD OF DIRECTORS  
RETAIL WATER & SEWER RATES  
COMMITTEE MEETING

TUESDAY, June 24, 2014; 9:30 a.m.  
AGENDA

<b>Call to Order</b>	Committee Chairman
<b>Monthly Updates</b>	Chief Financial Officer
<b>Committee Workplan</b>	Chief Financial Officer
<b>Other Business</b>	Chief Financial Officer
<b>Agenda for July 22, 2014 Committee Meeting</b>	Committee Chairman
<b>Adjournment</b>	

\*Detailed agenda can be found on DC Water's website at [www.dewater.com/about/board\\_agendas.cfm](http://www.dewater.com/about/board_agendas.cfm)