



Massachusetts Water Resources Authority

*Presentation to the*

**Wastewater Advisory Committee  
Water Advisory Committee  
Proposed**

*Fiscal Year 2012*

*Current Expense and Capital Improvement Budget*

*Overviews*

**April 8, 2011**



# Outline

## **AGENDA - CEB & CIP Budgets at a Glance**

- **Current Expense Budget**
  - FY10 Actual Results & FY11 Results through February
  - FY12 Proposed Overview
  - Expenses and Revenues
  - Rates Outlook
- **Capital Improvement Program**
  - FY10 Actual Results & FY11 Year to Date Results through February
  - FY12 Proposed CIP Overview
  - FY09-13 Cap Overview
  - FY12 Proposed FY09-13 Spending
  - FY09-13 Major Initiatives
- **Capital Financing**
  - Accessing Capital Markets
  - Debt Mix
  - Ratings Outlook
  - Other



## FY12 Proposed CEB & CIP Budgets at a Glance

### Proposed FY12 CEB (in millions)

Rate Revenue Requirement	\$592.2	3.9% increase from FY11	
Direct Expenses	\$209.6	Rate Revenue	\$592.2
Indirect Expenses	\$40.2	Investment Income	\$13.9
Capital Financing (net)	<u>\$371.9</u>	Other Revenue	<u>\$15.6</u>
<b>Total Expenses</b>	<b>\$621.7</b>	<b>Total Revenue</b>	<b>\$621.7</b>

### Proposed FY12 CIP

Total Budget	\$5.5 billion
Spending thru FY10	<u>\$3.3 billion</u>
Remaining Balance	\$2.2 billion
FY09-13 spending	\$1.061 billion < \$1.144 billion 5-year Cap



Massachusetts Water Resources Authority

## **Current Expense Budget**



## Fiscal Year 2010 Current Expense Budget Year-End Results

<b>Fiscal Year 2010</b>				
<b>Expenses</b>	<b>Budget</b>	<b>Actual</b>	<b>Variance</b>	<b>%</b>
Direct Expenses	\$209,612,685	\$206,161,025	-\$3,451,661	-1.6%
Indirect Expenses	\$39,763,418	\$37,914,923	-\$1,848,495	-4.6%
Debt Service	\$346,876,225	\$345,229,503	-\$1,646,722	-0.5%
<b>TOTAL EXPENSES</b>	<b>\$596,252,328</b>	<b>\$589,305,451</b>	<b>-\$6,946,879</b>	<b>-1.2%</b>
<b>TOTAL REVENUE</b>	<b>\$596,252,328</b>	<b>\$596,832,523</b>	<b>\$580,195</b>	<b>0.1%</b>
<b>REVENUE LESS EXPENSES</b>	<b>\$0</b>	<b>\$7,527,073</b>	<b>\$7,527,073</b>	

- Direct Expense underspending due to lower maintenance, wages and salaries, and chemicals offset by higher utility costs, worker's compensation, and overtime.
- Indirect Expense underspending for not making the optional pension payment offset by higher insurance claims.
- Debt Expense underspending due to lower variable rate debt expense. Variance is after \$21.8 million defeasance, which benefitted FY11, FY12, and FY13.



## Fiscal Year 2011 Current Expense Budget through March

<b>Fiscal Year 2011 year-to-date March</b>				
<b>Expenses</b>	<b>Budget</b>	<b>Actual</b>	<b>Variance</b>	<b>%</b>
Direct Expenses	\$151,454,116	\$147,229,206	-\$4,224,909	-2.8%
Indirect Expenses	\$29,617,170	\$28,219,598	-\$1,397,572	-4.7%
Debt Service	\$260,146,227	\$246,815,071	-\$13,331,156	-5.1%
<b>TOTAL EXPENSES</b>	<b>\$441,217,513</b>	<b>\$422,263,875</b>	<b>-\$18,953,636</b>	<b>-4.3%</b>
<b>TOTAL REVENUE</b>	<b>\$451,278,870</b>	<b>\$451,340,434</b>	<b>\$61,563</b>	<b>0.0%</b>
<b>REVENUE LESS EXPENSES</b>	<b>\$10,061,357</b>	<b>\$29,076,560</b>	<b>\$19,015,203</b>	

Direct Expense underspending due to lower wages and salaries, maintenance, other services, and fringe benefits offset by higher overtime, workers compensation and other materials.

Indirect Expense underspending mainly due to lower insurance expenses.

Debt Expense underspending due to lower variable rate date expense.



## FY12 Proposed Current Expense Budget

The FY12 budget holds to the 3.9% rate increase commitment made during the development of the FY11 budget as part of a three year strategy to keep rates manageable and predictable during this challenging period.

This rate increase is achieved by continuing many of the actions taken in FY11 including:

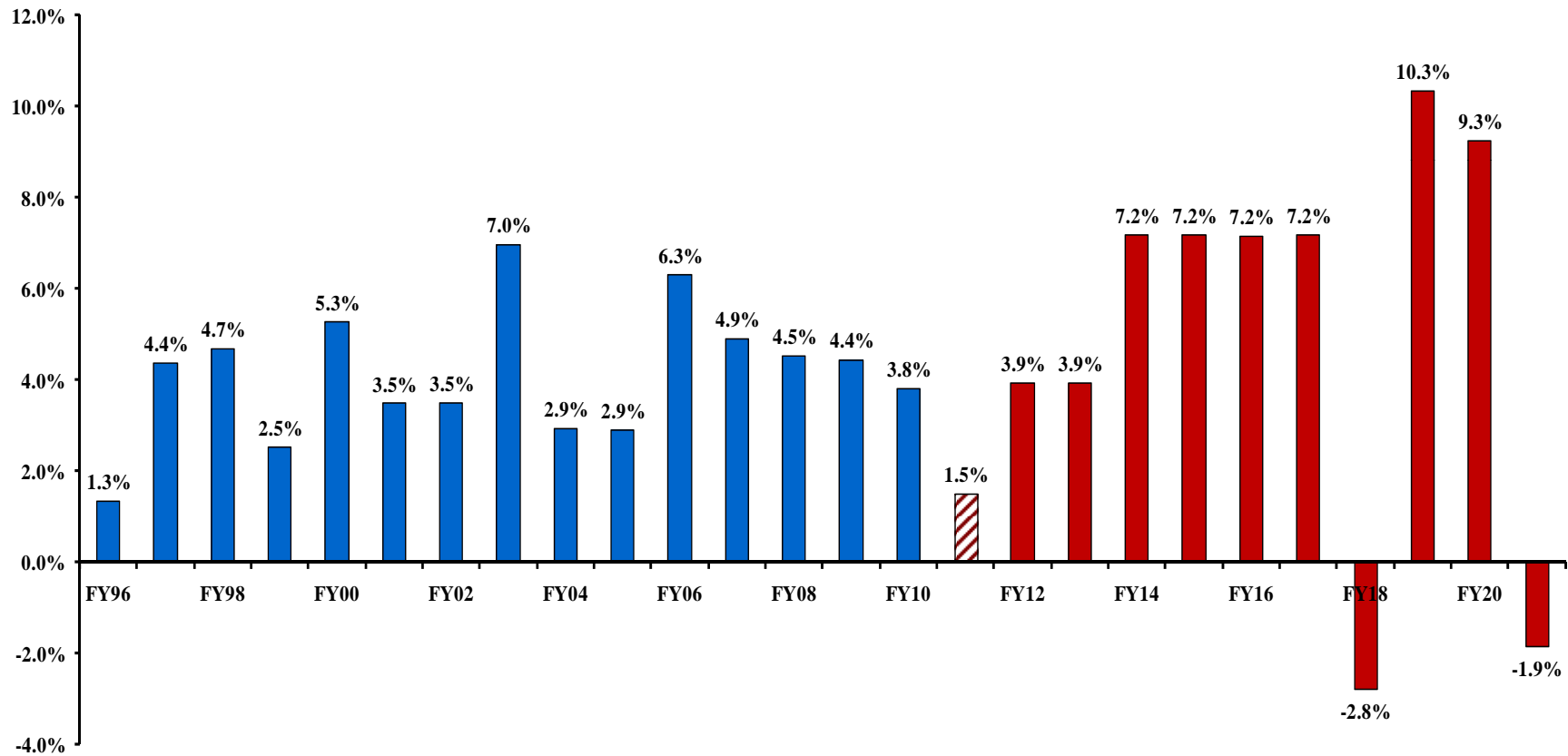
- Level funded direct expenses with FY11 CEB
- No wage increases in FY12 for union and non-union staff
- Only required pension contribution
- Only nominal OPEB contribution
- Targeted defeasance
- Use of reserves

The budget decisions made in the near term will have a long term impact on the future. As the MWRA rolls out year two of the three year strategy it must keep to a Multi-year rates management strategy and look beyond this three year snapshot to plan for what lies ahead.



## FY12 Proposed CEB Challenges (continued)

Historical & Projected  
Rate Increases







## FY12 Proposed Current Expense Budget

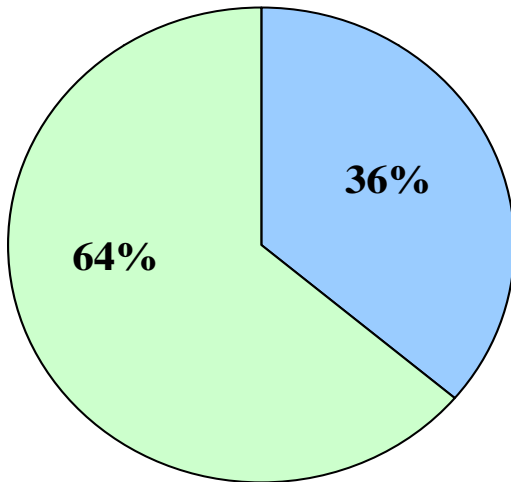
The reality of meeting MWRA's financial goals is an operating budget heavily weighted by its debt obligations.

	FY12 Proposed Budget	% of Total Budget
<b>Direct Expenses</b>	\$ 209,581,213	34%
<b>Indirect Expenses</b>	\$ 40,165,540	6%
<b>Total Debt Service (after offsets)</b>	\$ 371,917,522	<b>60%</b>
<b>Total Expense</b>	\$ 621,664,275	
<b>Rate Revenue</b>	\$ 592,200,000	95%
<b>Non-Rate Revenue</b>	\$ 29,464,275	5%
<b>Total Revenue</b>	\$ 621,664,275	

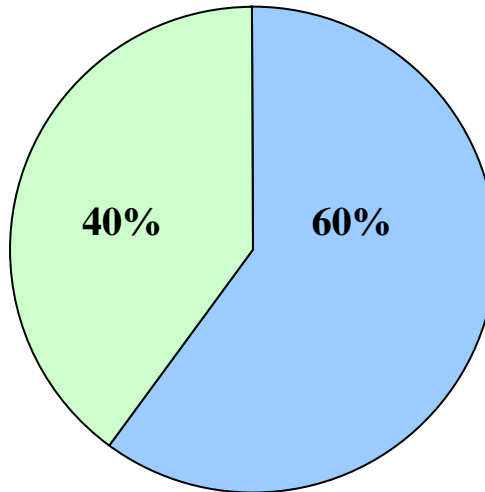


## Debt Service is the Largest Portion of CEB - \$371.9 million

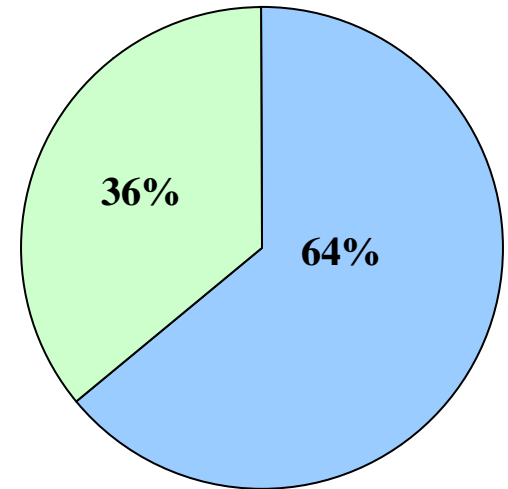
**FY1990**



**FY2012**

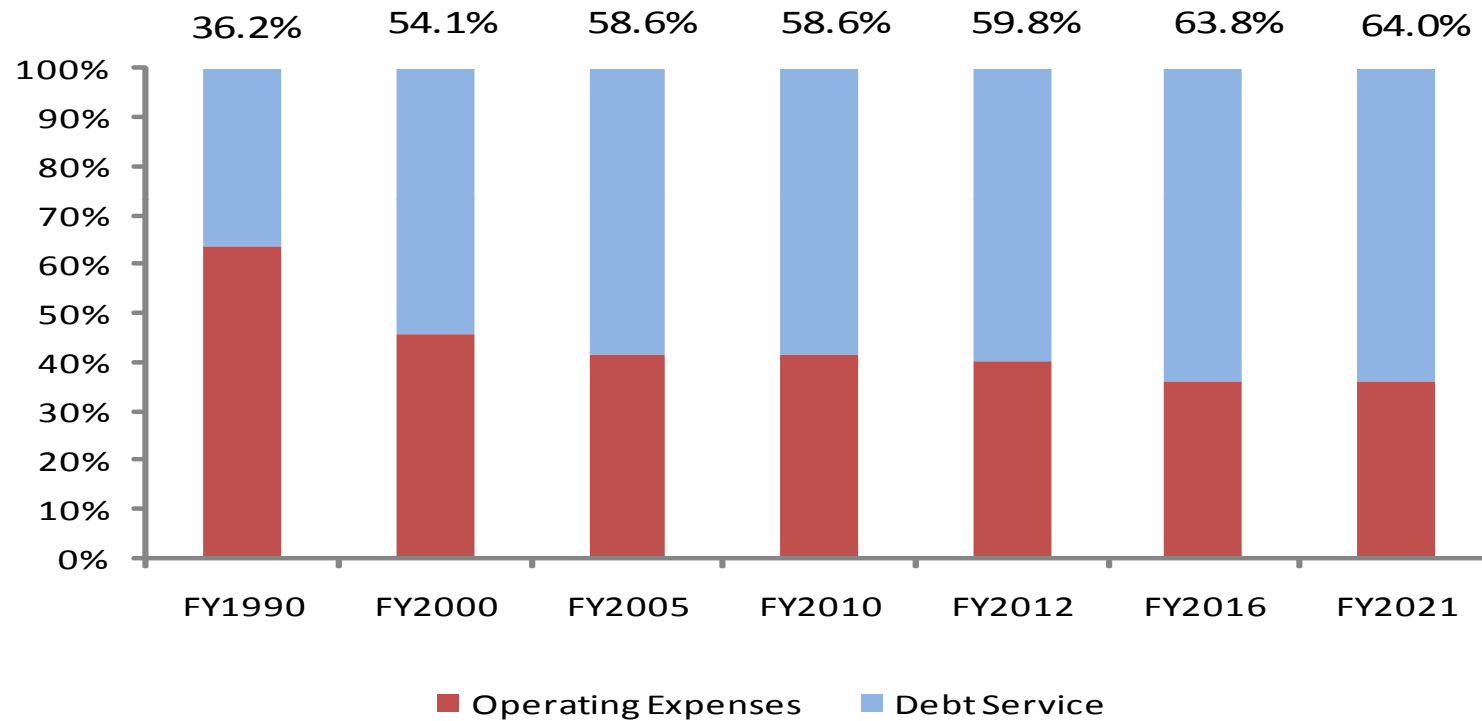


**FY2016**





## Debt Service is the Largest Portion of CEB - \$371.9 million & nearly 60% of Expenses



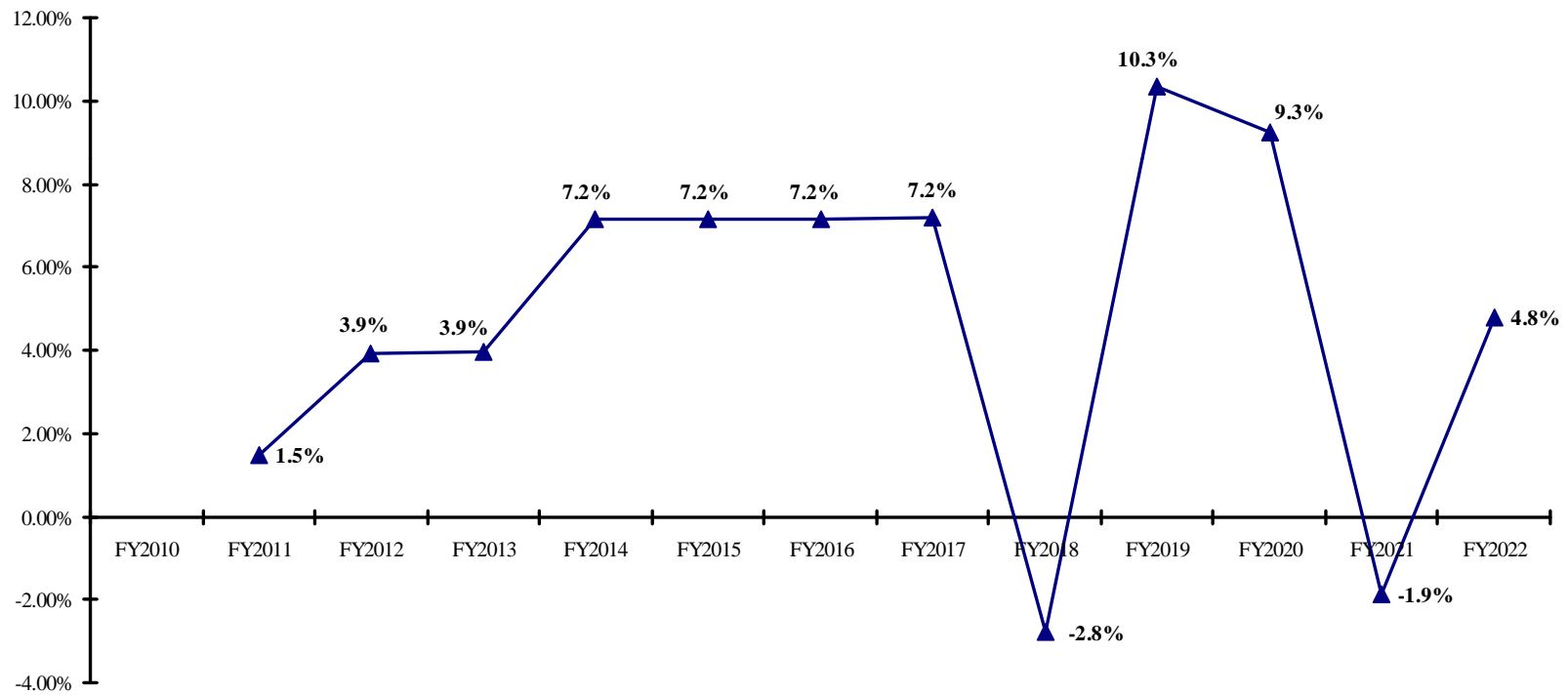


## Planning Estimates

<b>Planning Estimates based on the FY12 Budget</b>							
	Capital Expenses	D/S Increase from prior year	% Change	Rate Revenue Requirement	R/R Increase from prior year	Rate Increases	Use of Reserves
FY2010	347,226			561,431			7,312
FY2011	354,326	7,100	2.0%	569,800	8,369	1.5%	5,030
FY2012	371,918	17,592	5.0%	592,200	22,400	3.9%	3,526
FY2013	384,850	12,932	3.5%	615,569	23,369	3.9%	2,596
FY2014	425,035	40,185	10.4%	659,712	44,143	7.2%	15,871
FY2015	472,251	47,215	11.1%	707,013	47,300	7.2%	24,550
FY2016	514,841	42,590	9.0%	757,638	50,625	7.2%	8,511
FY2017	555,889	41,048	8.0%	811,992	54,354	7.2%	14,756
FY2018	517,344	(38,545)	-6.9%	789,315	(22,677)	-2.8%	
FY2019	587,649	70,305	13.6%	870,938	81,623	10.3%	
FY2020	654,843	67,194	11.4%	951,537	80,599	9.3%	
FY2021	628,683	(26,160)	-4.0%	933,888	(17,649)	-1.9%	
FY2022	659,203	30,520	4.9%	978,700	44,813	4.8%	
<b>AVERAGE FY12-FY22</b>		28,729			38,650		74.3%
The 74.3% is the average increase per year related to Debt Service							



### Rate Revenue Increases Based on the Proposed FY12 CEB





## Long-Term Management of Rates and Charges

### Based on FY11 Approved Current Expense Budget

<u>Fiscal Year</u>	<u>FY11</u>	<u>FY12</u>	<u>FY13</u>	<u>FY14</u>	<u>FY15</u>	<u>FY16</u>
Rate Revenue Requirement (in millions)	\$569.8	\$592.2	\$615.4	\$664.0	\$716.4	\$764.1
Rate Revenue Increase	1.49%	3.9%	3.9%	7.9%	7.9%	6.7%
Household Rate						
Based on Water Use of 61,000 Gallons	\$839	\$876	\$917	\$971	\$1,034	\$1,100
Based on Water Use of 90,000 Gallons	\$1,238	\$1,293	\$1,353	\$1,433	\$1,526	\$1,624

### Based on FY12 Proposed Current Expense Budget

<u>Fiscal Year</u>	<u>FY11</u>	<u>FY12</u>	<u>FY13</u>	<u>FY14</u>	<u>FY15</u>	<u>FY16</u>
Rate Revenue Requirement (in millions)	\$569.8	\$592.2	\$615.6	\$659.7	\$707.0	\$757.6
Rate Revenue Increase	1.49%	3.9%	3.9%	7.2%	7.2%	7.2%
Household Rate						
Based on Water Use of 61,000 Gallons	\$839	\$875	\$918	\$969	\$1,029	\$1,094
Based on Water Use of 90,000 Gallons	\$1,238	\$1,292	\$1,354	\$1,430	\$1,518	\$1,614



## Long-Term Management of Rates and Charges

- \$69.8 Million in Rate Stabilization and Bond Redemption funding is available to smooth rates after FY11:
  - \$36.9 million in Rate Stabilization Fund
    - Use cannot exceed 10% of the year's senior debt service.
  - \$32.9 million in Bond Redemption Fund
    - Monies in this fund can only be used to retire or prepay outstanding debt.
  
- Potential Uses of Future Year Surpluses
  - Defease Bonds;
  - Make Additional deposits to Rate Stabilization Fund;
  - Accelerate purchases of equipment and fuel;
  - Pre-fund Retirement System obligations; and
  - Fund Other Post Employment Benefits (OPEB) obligation.



## FY12 Proposed CEB – Level Funded Direct Expenses

Direct Expenses \$ in Millions	FY11 Final	FY12 Proposed	\$ change	% Change
Wages and Salaries	\$ 91.2	\$ 90.5	\$ (0.6)	-0.7%
Overtime	3.3	3.5	\$ 0.2	6.1%
Fringe Benefits	18.0	18.1	\$ 0.1	0.8%
Workers' Compensation	1.9	2.0	\$ 0.2	8.0%
Chemicals	9.8	10.0	\$ 0.2	2.2%
Energy and Utilities	23.3	22.1	\$ (1.2)	-5.2%
Maintenance	28.8	29.6	\$ 0.9	3.0%
Training and Meetings	0.2	0.3	\$ 0.0	12.2%
Professional Services	6.0	5.7	\$ (0.3)	-5.0%
Other Materials	4.6	4.7	\$ 0.1	1.7%
Other Services	22.6	23.0	\$ 0.4	1.8%
<b>TOTAL DIRECT EXPENSES</b>	<b>\$ 209.6</b>	<b>\$ 209.6</b>	<b>\$ 0.0</b>	<b>0.0%</b>





## Level Funded Direct Expenses

Direct Expenses are level funded for the fourth year in a row. FY12 Proposed level funding is the result of:

- Increases for Maintenance of \$871,000 due to aging facilities;
- Other Services of \$425,000 mainly for contractual escalation and projected increased property tax liability for Authority facilities and increased inflation indices associated with the sludge processing contract;
- Increased chemicals of \$220,000 mainly for anticipated new regulatory requirements for enterococcus compliance;
- Increased Overtime as a result of FY10 actual experience;
- Decreased Utilities of \$1.2 million as a result of lower pricing for the Carroll Water Treatment Plant, Clinton, and other larger pump station accounts; and
- Decreased Wages and Salaries of \$640,000 due to lower funded headcount and lower leave balance accruals.



## FY12 Proposed CEB – Indirect Expenses

Indirect Expenses \$ in Millions	FY11 Final	FY12 Proposed	\$ Change	% Change
Insurance	\$ 2.6	\$ 2.4	\$ (0.2)	-7.2%
Watershed/PILOT	24.7	25.3	0.6	2.3%
HEEC	4.2	3.7	(0.5)	-12.2%
Mitigation	1.5	1.5	0.0	0.7%
Addition to Reserves	(0.4)	(0.1)	0.3	-76.7%
Retirement Fund	5.3	5.5	0.1	2.7%
Postemployment Benefits	-	1.9	1.9	
<b>TOTAL</b>	<b>\$ 38.0</b>	<b>\$ 40.2</b>	<b>\$ 2.2</b>	<b>5.8%</b>



## Indirect Expenses

Indirect Expenses increased \$2.2 million or 5.8% from the FY11 Final Budget due to the following:

- Nominal funding of the Authority's Other Post Employment Benefit (OPEB) obligation of \$1.9 million;
- Increased Watershed expenses of \$581,000 mainly due to increased Payment in Lieu of Taxes (PILOT); and
- Decreased funding for Harbor Electric Energy Company (HEEC) of \$509,000 due to decreased special maintenance initiatives and lower capacity charge payments.



## FY12 Risks

Risk include:

- Utility and chemical pricing;
- Changing regulatory requirements; and
- Debt financing and investment income interest rates.



## Lack of Sustainability

- No Wage increases;
- Variable rates unpredictable;
- Debt Service Assistance unlikely in the coming years;
- Federal budget cuts will lower SRF funding;
- On-going Pension and OPEB obligations;
- Limited restructuring opportunities for the near term;
- Existing CIP program spending will increase indebtedness; and
- Improvement in the economy will bring about price increases.



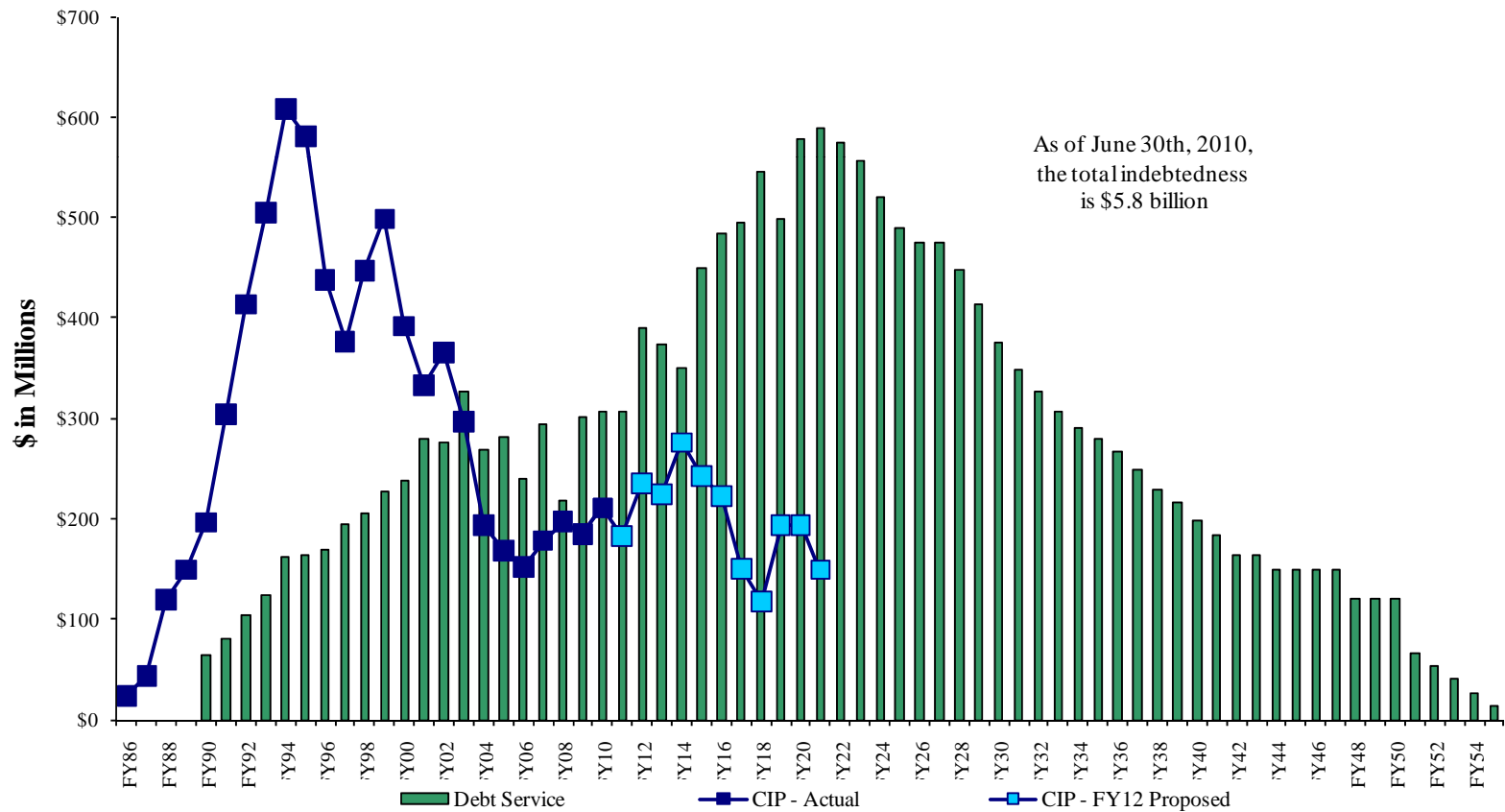
## Release of Reserves

- Indenture change will release \$141 million in reserve funding.
- Release date is now estimated to be closer to FY16.
- The reserve release is not the panacea to solve the increase Rate Revenue Requirement.



# CIP Spending and Debt Service

## MWRA Capital Improvement Spending & Debt Service





## Possible Options

The MWRA acknowledges the demanding economic times and further recognizes that there are limited tools available to address its growing obligations without impacting our core mission.

- Reduce Capital spending;
- Reduce Headcount;
- Defer principal payments on new issuances beyond 2015;
- Ignore OPEB obligations;
- Cut Maintenance;
- Maximize Non-Rate Revenue; and
- System Expansion initiatives.





## Plan

Work with the Advisory Board to develop both short and long term options that ensure measured and responsible level of rate increases.



Massachusetts Water Resources Authority

## Fiscal Year 2012 Proposed Capital Improvement Program





## Capital Improvement Summary & Completed Projects

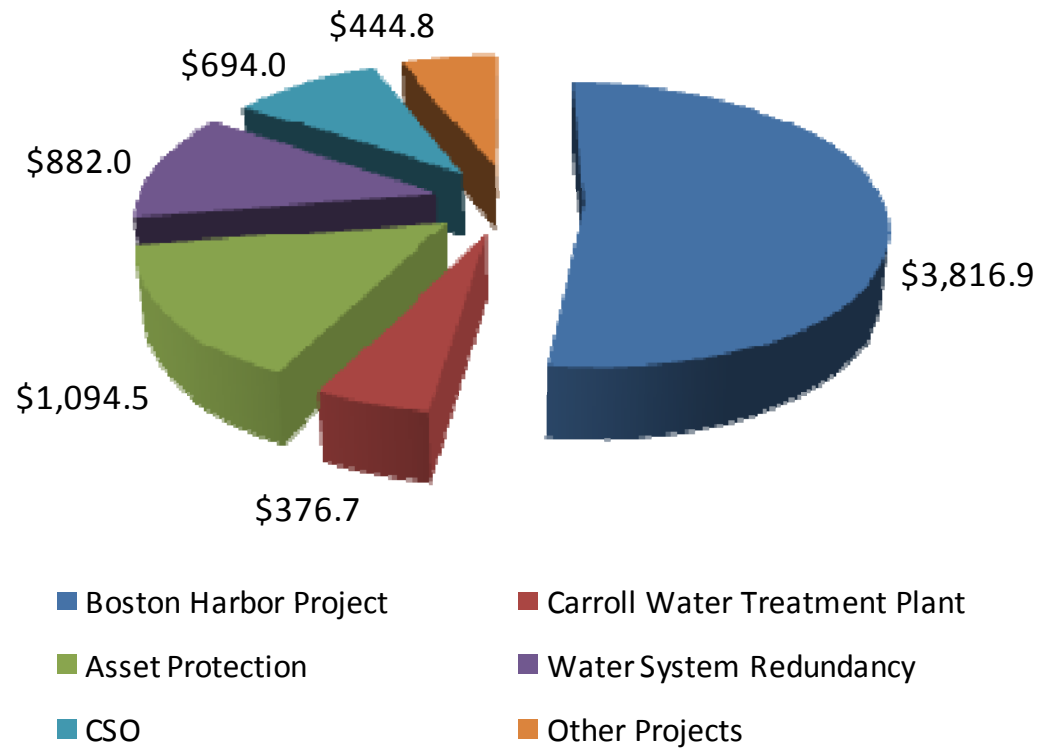
Since its creation in 1986, the MWRA has expended \$7.3 billion to modernize and improve its infrastructure with \$2.2 billion remaining to be expended in the FY12 Proposed Budget.

Completed Facilities include:

- Deer Island Treatment Plant - \$3.8 billion
- CSO - \$694.0 million
- MetroWest Tunnel - \$647.2
- Carroll Water Treatment Plant – \$376.7 million



## Capital Budget Spending FY86 – 2010





## Capital Improvement Program – Shift from Mandated Projects

- Approximately 80% of the spending to date has been for mandated projects, most notably the Combined Sewer Overflow (CSO) program.
- Going forward the majority of spending will support the following:

Asset Protection

Water Redundancy

Pipeline Replacement and Rehabilitation

Energy Initiatives



## Capital Improvement Program – Shift from Mandated Projects (continued)

	<b>Spending Thru FY10</b>	<b>FY09-13</b>	<b>FY14-18</b>
Boston Harbor Project	\$3,816.9		
Carroll WTP	376.7	42.1	19.2
Asset Protection	1,094.5	367.2	577.7
Water Redundancy	882.0	162.1	380.2
CSO	694.0	320.3	24.9
Other Projects	444.8	143.8	5.1
<b>Total</b>	<b>\$7,308.9</b>	<b>\$1,035.5</b>	<b>\$1,007.1</b>
Boston Harbor Project	52.2%		
Carroll WTP	5.2%	4.1%	1.9%
Asset Protection	15.0%	35.5%	57.4%
Water Redundancy	12.1%	15.7%	37.8%
CSO	9.5%	30.9%	2.5%
Other Projects	6.1%	13.9%	0.5%
<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Spending on Asset Protection and Water Redundancy will increase substantially in the coming years.



## Future Capital Improvement Spending

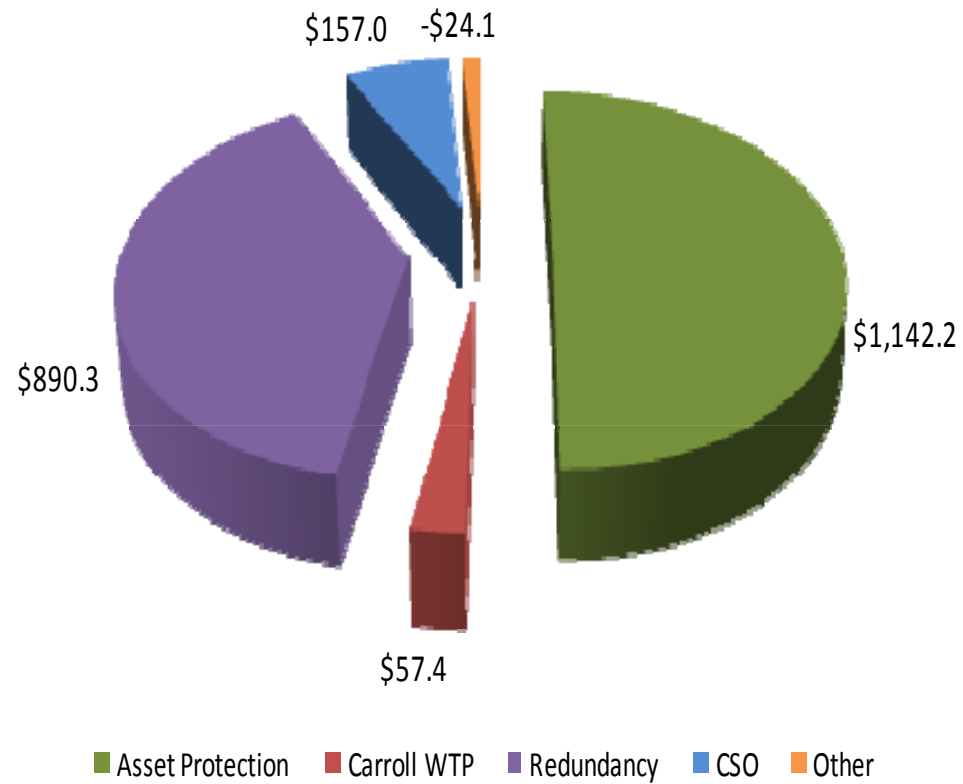
Having nearly completed the first phase of its mission, the Authority now must preserve its operating assets and establish redundancy to ensure continuous operations.

This next phase is for Asset Protection and Water Redundancy

- Asset Protection - \$1.1 billion
- Redundancy - \$890.3 million



## Future Capital Spending FY11 and Beyond







## Asset Protection

Asset protection and management projects are defined as the rehabilitation, repair, replacement, or upgrade of an existing asset or infrastructure to preserve good working condition and ensure efficient operation of the overall system.

- Asset protection expenditures are projected to increase from 15.0% of spending through FY10, to 35.5% for the FY09-13 time period, and 57.4% for the FY14-18 time period.



## Redundancy

The water main break of May 2010 highlighted the importance of system redundancy.

Redundancy is critical in achieving the desirable high degree of reliability of the water system both in the event of emergencies and to allow parts of the system to come off-line for regular inspection and rehabilitation.

- In September 2008, the Board approved a contract with the engineering firm of Fay, Spofford and Thorndike to study redundancy for the overall water transmission system.
- Water System Redundancy expenditures are projected to increase from 12.1% of spending through FY10, to 15.7% for the FY09-13 time period, and 37.8% for the FY14-18 time period.



## Fiscal Year 2010 Capital Improvement Program Year-End Results

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
<b>Wastewater System Improvements</b>				
Interception & Pumping	4,103,466	2,542,229	-1,561,237	-38.0%
Treatment	53,896,384	56,033,391	2,137,007	4.0%
Residuals	717,386	359,601	-357,785	
CSO	106,760,899	89,259,041	-17,501,857	-16.4%
Other	-108,519	4,464,095	4,572,615	N/A
<b>Total Wastewater System Improvements</b>	<b>165,369,617</b>	<b>152,658,359</b>	<b>-12,711,257</b>	<b>-7.7%</b>
<b>Waterworks System Improvements</b>				
Drinking Water Quality Improvements	17,461,341	12,446,093	-5,015,247	-28.7%
Transmission	20,220,039	15,679,199	-4,540,840	-22.5%
Distribution & Pumping	16,635,777	16,508,930	-126,846	-0.8%
Other	5,772,000	5,472,227	-299,772	-5.2%
<b>Total Waterworks System Improvements</b>	<b>60,089,157</b>	<b>50,106,451</b>	<b>-9,982,705</b>	<b>-16.6%</b>
<b>Business &amp; Operations Support</b>	<b>12,392,619</b>	<b>8,668,553</b>	<b>-3,724,065</b>	<b>-30.1%</b>
<b>Total MWRA</b>	<b>237,851,394</b>	<b>211,433,364</b>	<b>-26,418,029</b>	<b>-11.1%</b>

Spending through year-end totaled \$26.4 million or 11.1% below budget. After accounting for programs not directly under MWRA's control, most notably the Local Water Pipeline program, the Inflow and Infiltration (I/I) program, and the community managed Combined Sewer Overflow (CSO's) projects, the variance is \$24.0 million or 10.0%.



## FY10 Capital Improvement Program Year-End Results (continued)

The main reasons for year-to-date underspending are:

- Combined Sewer Overflow program of \$17.5 million – mainly for North Dorchester of \$11.0 million due to an aggressive in-house pre-award cash flow, Cambridge Sewer Separation of \$3.7 million, and Cambridge Floatables of \$1.2 million.
- Drinking Water Quality Improvements \$5.0 million – mainly due to Blue Hills Covered Storage of \$2.7 million due to timing, John J. Carroll Water Treatment Plant of \$1.7 million, and Quabbin Water Treatment Plant of \$476,000.
- Transmission of \$4.5 million – largely due to timing of Watershed Land Acquisition of \$2.2 million.
- Business and Operations Support of \$3.7 million – Alternative Energy of \$1.5 million for Loring Road Hydroelectric and Nut Island Wind schedule changes and Business System Plan underspending of \$1.4 million.

Some of the year-to-date underspending is offset by overspending of \$4.6 million in Other Wastewater due to greater than anticipated participation in the Inflow and Infiltration (I/I) program and in Treatment of \$2.1 million mainly due to accelerated progress on the DI Primary and Secondary Clarifier Rehabilitation.



## Fiscal Year 2011 Capital Improvement Program through March

\$ in Millions	Budget	Actuals	\$ Var.	% Var.
<b>Wastewater System Improvements</b>				
Interception & Pumping	7,273,526	5,128,048	-2,145,478	-29.5%
Treatment	31,878,584	26,878,673	-4,999,911	-15.7%
Residuals	573,723	-14,402	-588,125	
CSO	57,862,528	37,644,157	-20,218,370	-34.9%
Other	-118,791	2,269,453	2,388,245	N/A
<b>Total Wastewater System Improvements</b>	<b>97,469,570</b>	<b>71,905,929</b>	<b>-25,563,640</b>	<b>-26.2%</b>
<b>Waterworks System Improvements</b>				
Drinking Water Quality Improvements	2,990,957	1,174,702	-1,816,254	-60.7%
Transmission	14,505,118	19,508,737	5,003,619	34.5%
Distribution & Pumping	11,589,918	9,859,048	-1,730,869	-14.9%
Other	11,933,170	317,682	-11,615,487	-97.3%
<b>Total Waterworks System Improvements</b>	<b>41,019,163</b>	<b>30,860,170</b>	<b>-10,158,992</b>	<b>-24.8%</b>
<b>Business &amp; Operations Support</b>	<b>15,438,666</b>	<b>5,901,323</b>	<b>-9,537,342</b>	<b>-61.8%</b>
<b>Total MWRA</b>	<b>153,927,399</b>	<b>108,667,424</b>	<b>-45,259,974</b>	<b>-29.4%</b>

Spending through March totaled \$45.3 million or 29.4% below budget. After accounting for programs not directly under MWRA's control, most notably the Local Water Pipeline program, the Inflow and Infiltration (I/I) program, and the community managed Combined Sewer Overflow (CSO's) projects, the variance is \$21.0 million or 13.6%.



## FY11 Capital Improvement Program through March (continued)

The main reasons for year-to-date underspending are:

- Combined Sewer Overflow program - \$20.2 million mostly due to Reserved Channel of \$6.2 million due to lower awards than budgeted, Brookline Sewer Separation Construction of \$6.2 million, and North Dorchester Bay of \$3.3 million.
- Waterworks Other - \$12.0 million due to Local Water Pipeline community requests for loans being lower than budgeted.
- Business and Operations Support - \$9.5 million mainly due to Alternative Energy projects of \$5.7 million, Business System Plan of \$1.2 million, and MWRA Facilities Management and Planning of \$525,000.
- Watershed land purchases - \$1.1 million related to timing.

Some of the year-to-date underspending is offset by overspending of \$5.0 million in Transmission due to the accelerated schedule and higher than expected contractor progress on the Hultman Rehabilitation of \$7.9 million.



## Fiscal Year 2009 – 2013 Base-Line Cap

### FY09-13 Base-Line Cap Overview

- Current Cap of \$1.1438 billion for FY09-13 was established by the Board in June 2008.

<b>BASE-LINE Cap</b>	<b>FY09</b>	<b>FY10</b>	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>	<b>Total FY09-13</b>
Projected Expenditures	\$230.0	\$251.7	\$224.3	\$196.7	\$178.7	\$1,081.4
Contingency	15.6	13.8	12.0	12.1	11.4	64.8
Inflation on Unawarded Construction	0.0	0.5	2.8	7.8	11.3	22.4
Less: Chicopee Valley Aqueduct Projects	(1.2)	(1.9)	(9.1)	(9.5)	(2.9)	(24.8)
<b>FY09-13 Base-Line Cap</b>	<b>\$244.4</b>	<b>\$264.1</b>	<b>\$230.0</b>	<b>\$207.0</b>	<b>\$198.4</b>	<b>\$1,143.8</b>

- Annual spending may vary by +/- 20%, as long as total spending for the five years does not exceed the Cap.



## FY12 Proposed CIP (FY09-13 Spending Cap)

- Currently projecting to spend \$1.0612 billion, which is \$82.7 million or 7.2% less than the Base-Line Cap.

<b>FY12 Proposed</b>	<b>FY09</b>	<b>FY10</b>	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>	<b>Total FY09-13</b>
Projected Expenditures	\$182.2	\$211.4	\$183.0	\$235.0	\$223.9	\$1,035.5
Contingency	0.0	0.0	9.6	11.8	13.1	34.5
Inflation on Unawarded Construction	0.0	0.0	0.0	2.2	5.8	8.0
Less: Chicopee Valley Aqueduct Projects	(0.6)	(0.5)	(1.2)	(5.1)	(9.5)	(16.9)
<b>Total FY09-13 (Proposed FY12 Budget)</b>	<b>\$181.6</b>	<b>\$210.9</b>	<b>\$191.4</b>	<b>\$243.8</b>	<b>\$233.4</b>	<b>\$1,061.2</b>

<b>Change (FY09 Base-Line to FY12 Proposed)</b>	<b>FY09</b>	<b>FY10</b>	<b>FY11</b>	<b>FY12</b>	<b>FY13</b>	<b>Total Change FY09-13</b>
Projected Expenditures	(\$47.8)	(\$40.2)	(\$41.3)	\$38.2	\$45.2	(\$45.8)
Contingency	(15.6)	(13.8)	(2.4)	(0.3)	1.7	(30.3)
Inflation on Unawarded Construction	0.0	(0.5)	(2.8)	(5.5)	(5.4)	(14.3)
Less: Chicopee Valley Aqueduct Projects	0.6	1.4	8.0	4.4	(6.5)	7.8
<b>FY09-13 Cap (\$ Change)</b>	<b>(\$62.8)</b>	<b>(\$53.2)</b>	<b>(\$38.5)</b>	<b>\$36.8</b>	<b>\$35.0</b>	<b>(\$82.7)</b>
<b>FY09-13 Cap (% Change)</b>	<b>-25.7%</b>	<b>-20.1%</b>	<b>-16.8%</b>	<b>17.8%</b>	<b>17.6%</b>	<b>-7.2%</b>

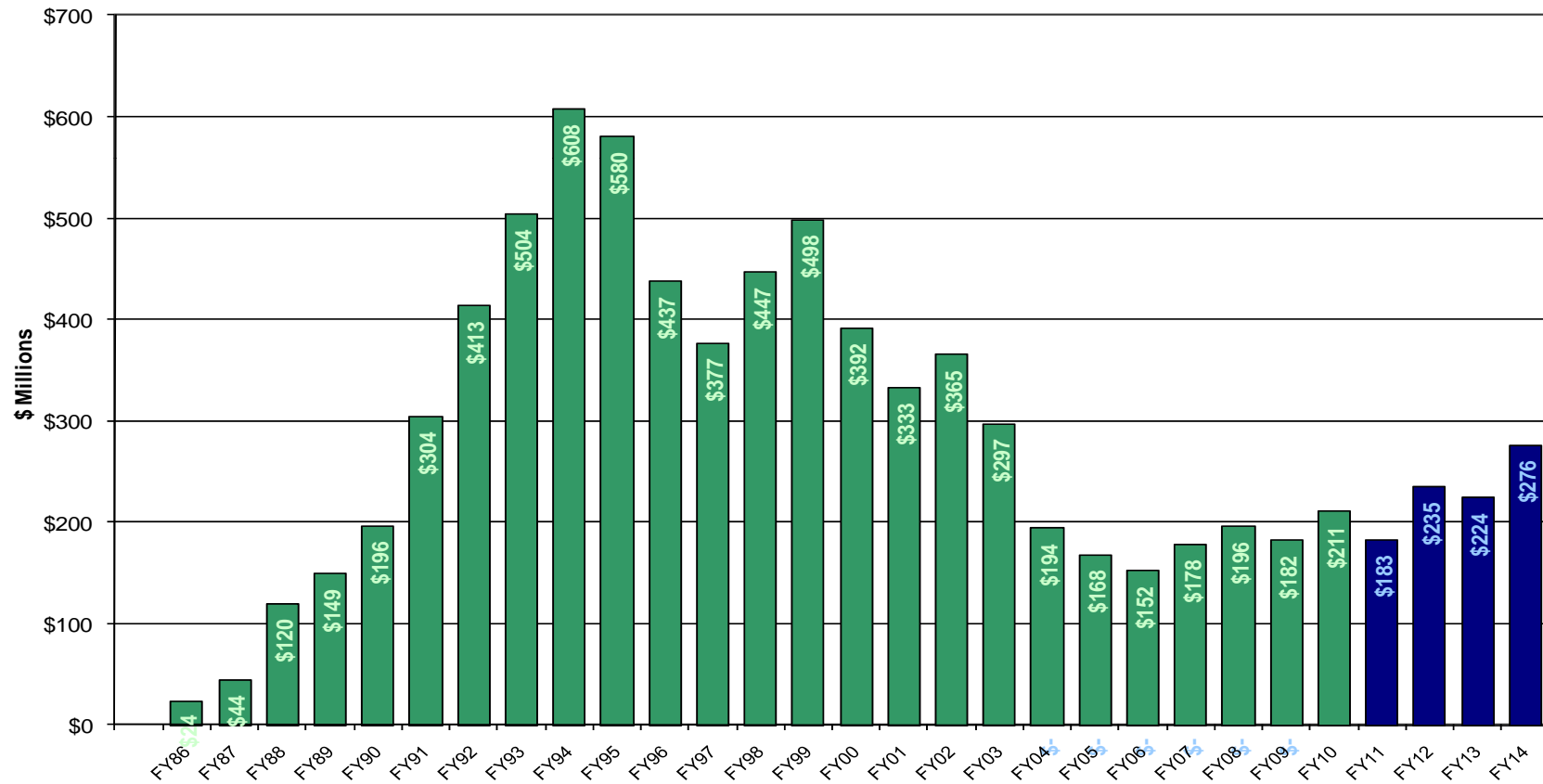
- FY12 Proposed CIP complies with both the annual and the overall 5-year Cap requirements.





# Capital Improvement Historical Spending

**MWRA Capital Spending  
FY86-10 Actual; FY12 Proposed CIP**



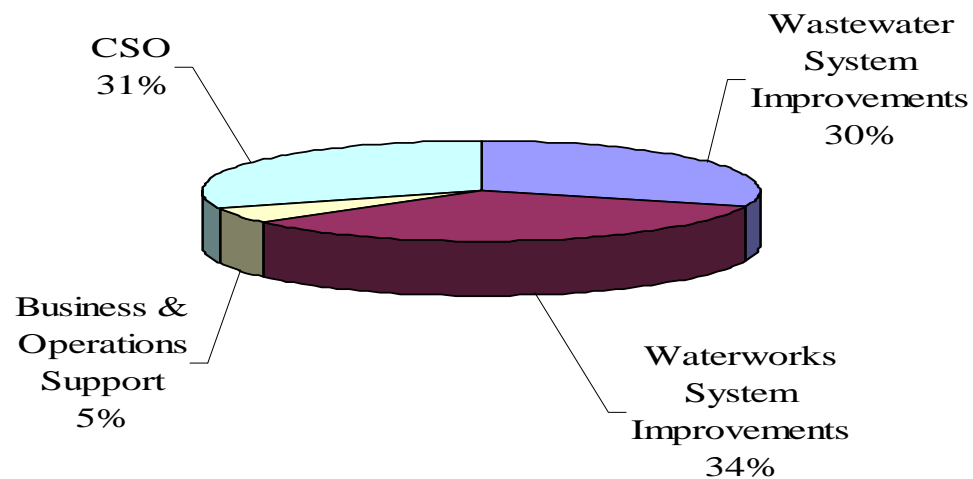


## FY12 Proposed Capital Improvement Program Summary

### FY12 Proposed Capital Improvement Program Summary

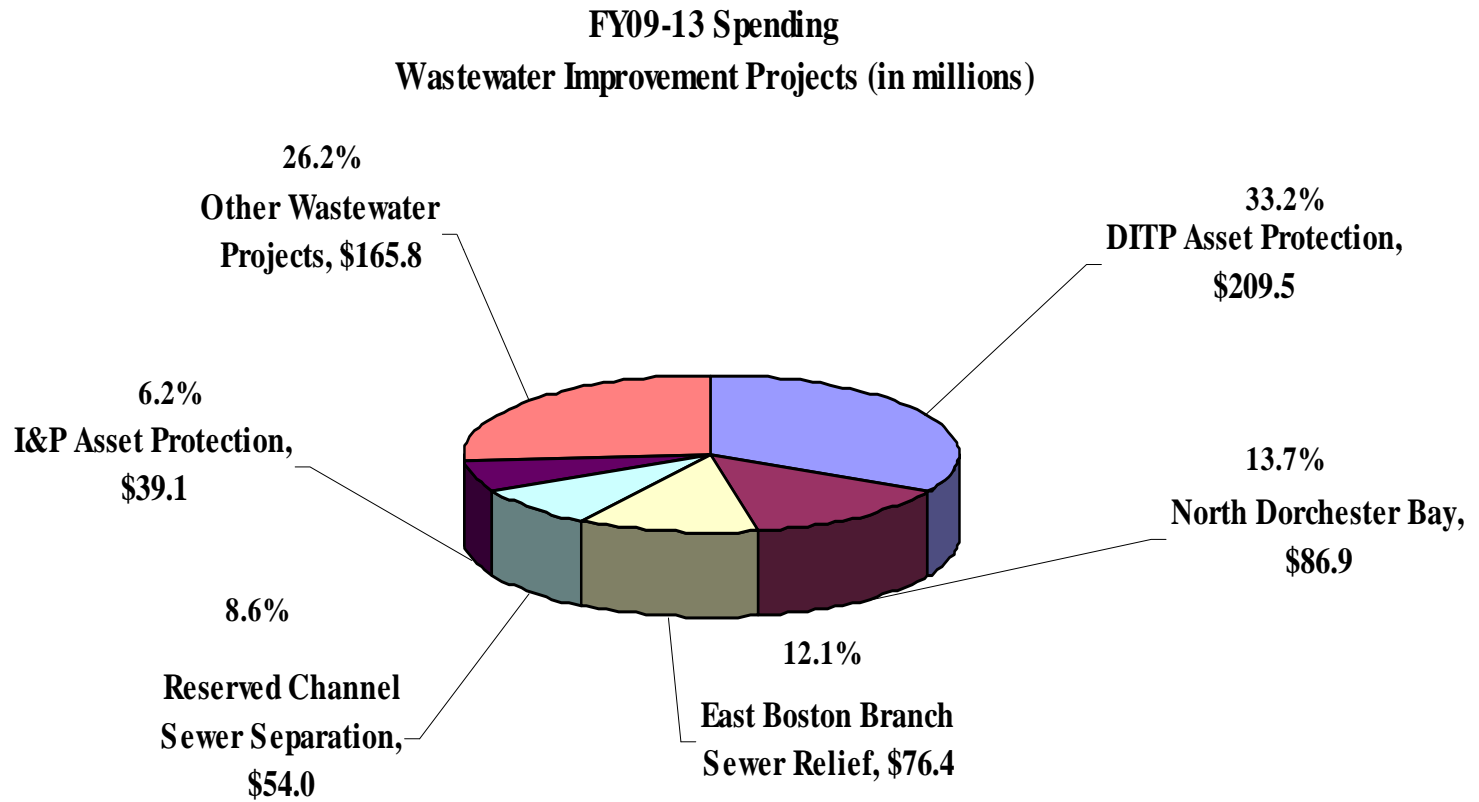
- FY09-13 expenditures are projected at \$1.036 billion.
- The FY12 Proposed CIP future spending is \$2.2 billion.

#### Capital Spending FY09-FY13





## FY12 CIP - Major Wastewater Project Spending FY09-13 Period





## Deer Island Treatment Plant Asset Protection

DITP is the major driver of Asset Protection initiatives as CSO's are completed.





## North Main Pump Station VFD Replacement



### NMPS VFD Replacement:

Total Budget	\$ 46.0M
Spending Through FY10	<u>\$ 0.0M</u>
Remaining Spending	\$ 46.0M
FY09-13 Spending	\$ 27.9M
FY12 Spending	\$ 15.8M



## Deer Island Digester Mod 1&2 Piping Replacement



### DITP Digester Mod 1&2 Pipe Replacement:

Total Budget	\$ 11.5M
Spending Through FY10	<u>\$ 0.0M</u>
Remaining Spending	\$ 11.5M
FY09-13 Spending	\$ 9.5M
FY12 Spending	\$ 5.7M





## Facilities Asset Protection – Headworks Upgrades



Chelsea Creek

Columbus Park

Ward Street

### **Design and Construction**

Total Budget	\$ 88.0M
Spending Through FY10	<u>\$ 0.0M</u>
Remaining Spending	\$ 88.0M
FY09-13 Spending	\$ 14.4M
FY12 Spending	\$ 1.0M



## Typical Headworks Issues

### Grit Collection and Conveyance Systems



### Climber Screens







## West Roxbury Tunnel

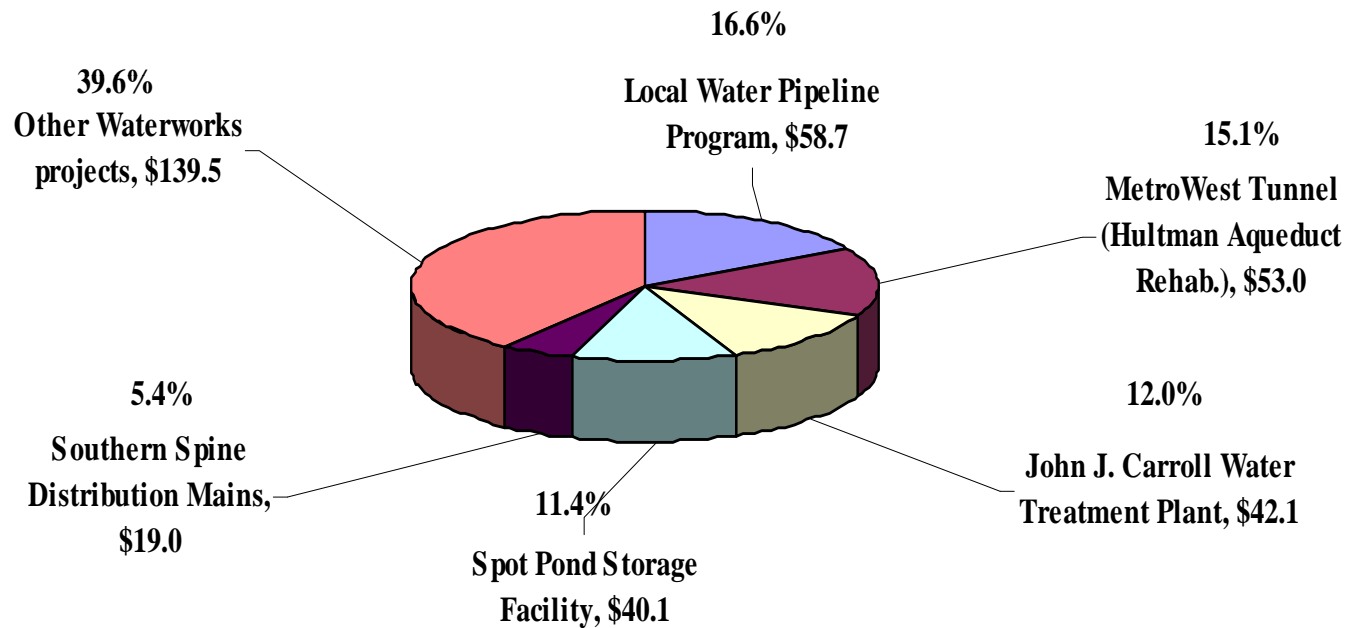


Design and Construction	
Total Budget	\$ 88.8M
Spending Through FY10	\$ 9.5M
Remaining Spending	\$ 79.2M
FY09-13 Spending	\$ 16.4M
FY12 Spending	\$ 0.1M



## FY12 CIP - Major Waterworks Project Spending FY09-13 Period

**FY09-13 Spending  
Waterworks Improvement Projects (in millions)**





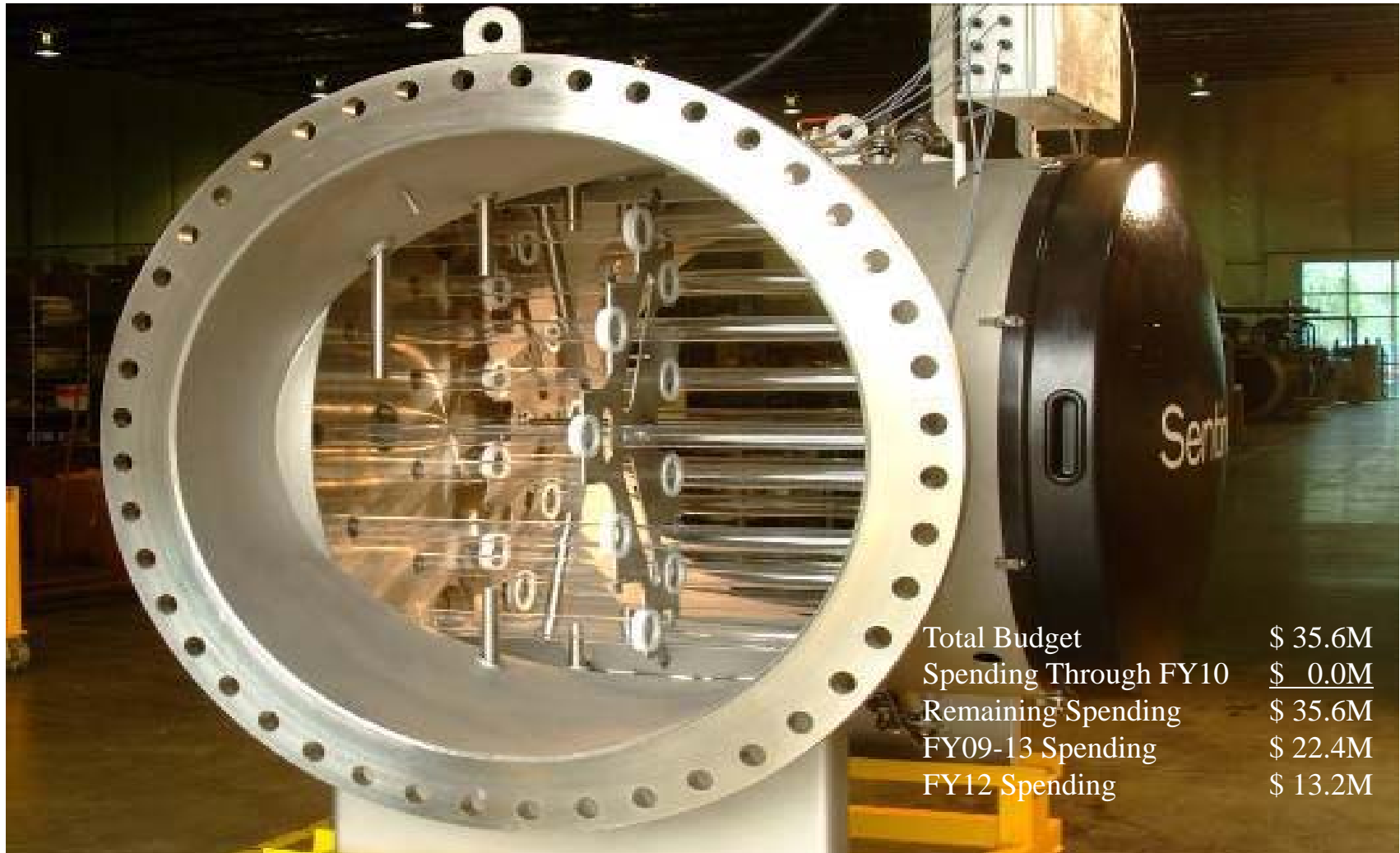
# Spot Pond



Total Budget	\$ 71.7M
Spending Through FY10	\$ 5.4M
Remaining Spending	\$ 66.3M
FY09-13 Spending	\$ 40.1M
FY12 Spending	\$ 17.2M



## Carroll Water treatment Plant (CWTP) UV Disinfection Construction

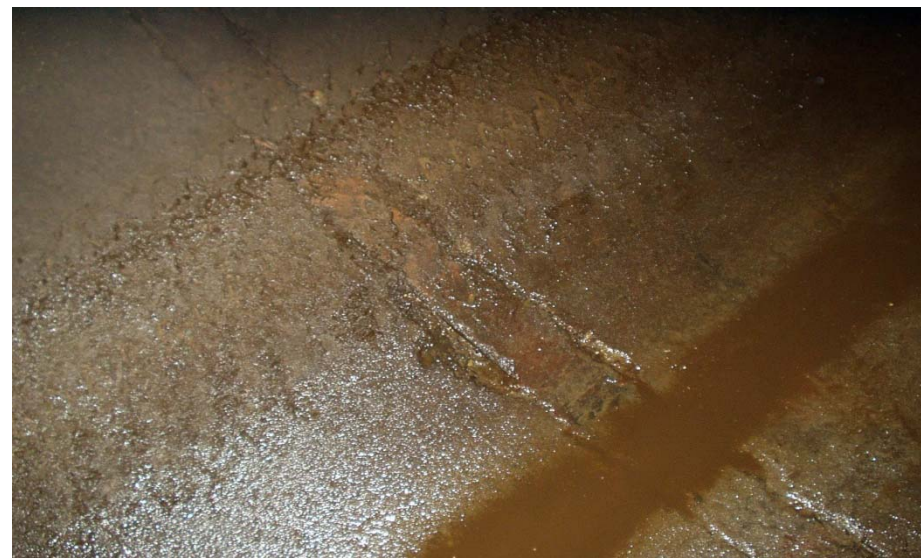
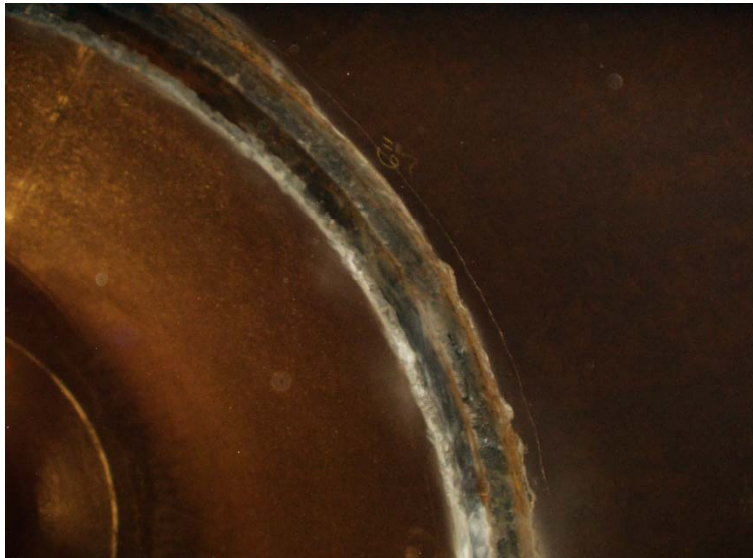


Total Budget	\$ 35.6M
Spending Through FY10	<u>\$ 0.0M</u>
Remaining Spending	\$ 35.6M
FY09-13 Spending	\$ 22.4M
FY12 Spending	\$ 13.2M



## MetroWest Tunnel – Lower Hultman Rehabilitation

Total Budget	\$ 49.9M
Spending Through FY10	<u>\$ 12.0M</u>
Remaining Spending	\$ 37.9M
FY09-13 Spending	\$ 43.3M
FY12 Spending	\$ 12.0M





## Alternative Energy Initiatives

The FY12 Proposed CIP includes \$25.8 million for investment in Alternative Energy Initiatives. The Alternative Energy initiatives included are:

- Charlestown Wind \$4.7M
- John J. Carroll Solar \$2.3M
- Loring Road Hydro \$1.9M
- Deer Island Solar \$1.1M
- Deer Island Wind \$4.0M
- Nut Island Wind \$4.2M
- Deer Island Wind Phase II \$2.5M

These programs, when installed, will result in savings in excess of \$1M per year.

Other efficiency improvements which will result in energy savings include:

- Steam Turbine Generator upgrades
- Variable Frequency Drive Replacement
- Low Voltage Lighting at various facilities



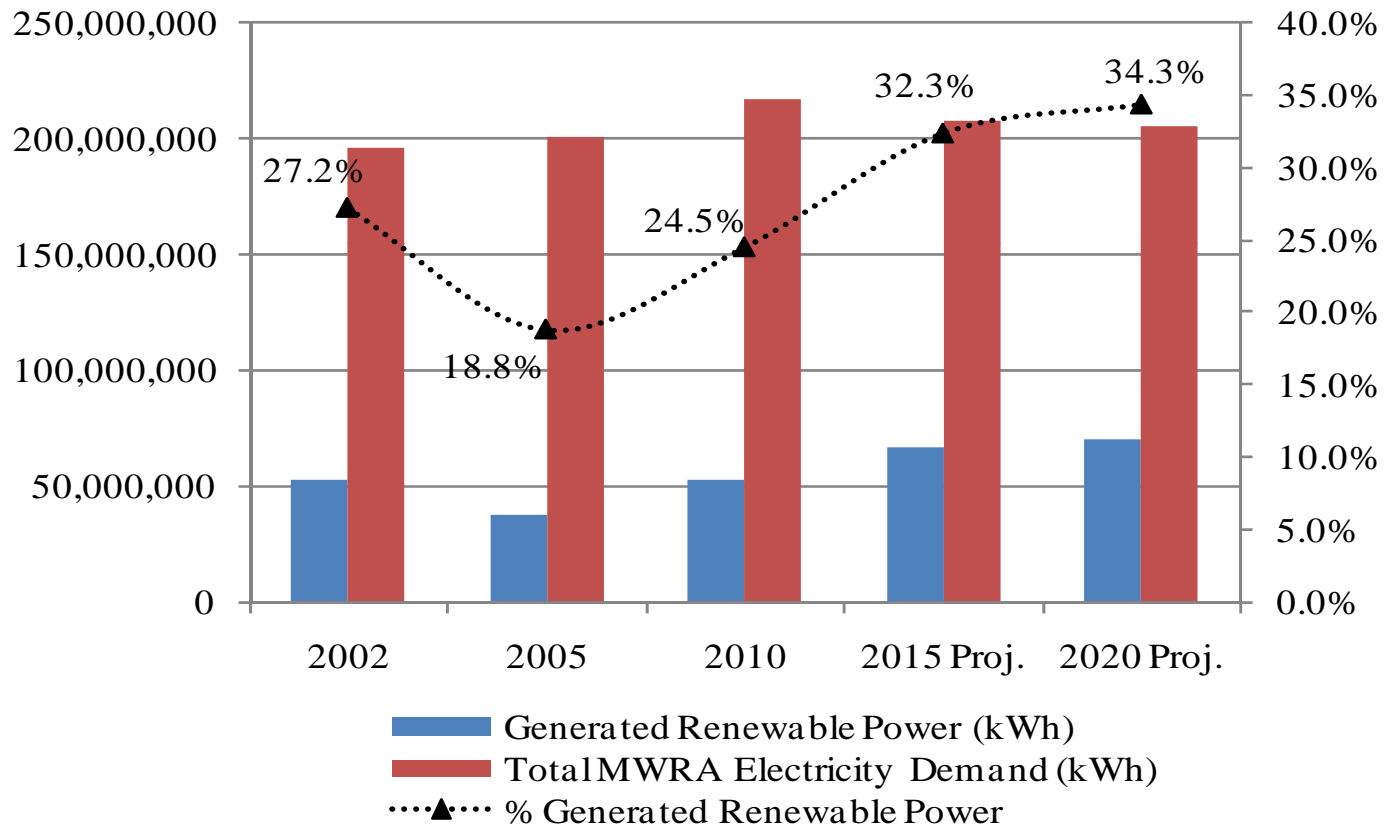
## Renewable Energy Initiatives – “Leading by Example”

MWRA continues to work aggressively to use its resources efficiently and reduce the environmental impacts of its daily operations.

- The FY12 budget projects that Deer Island’s self-generation will grow to 29% mostly due to improved Steam Turbine Generation (STG) operation.
- **The MWRA is on track to meet the Governor’s initiative that 35% of power demand be met by green sources by the year 2020.**
- Including the avoided cost of diesel fuel due to utilizing methane generated to power the Steam Turbine Generator (STGs) for the plant heat demand at Deer Island, MWRA is self-generating approximately half of the total energy requirements.



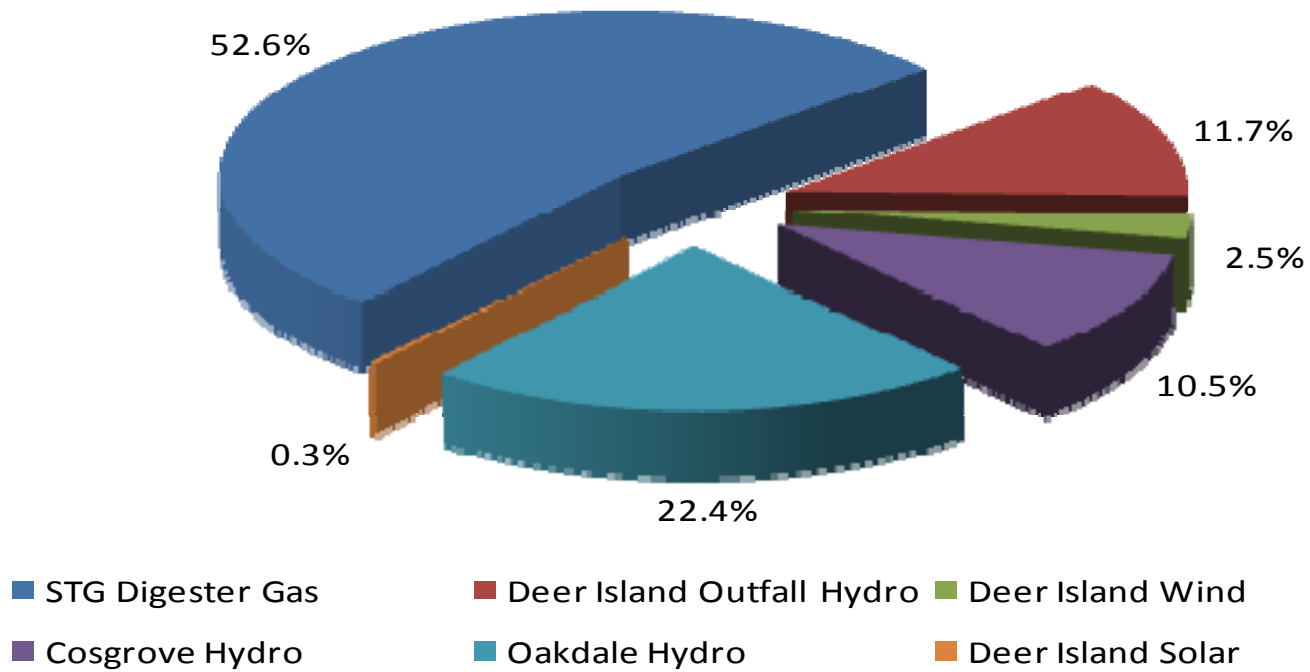
## Total MWRA Electricity Demand and Renewable Power Generation







## Renewable Energy By Source in 2010 – 53.1 million kWh





## Total Changes for FY12 Proposed Capital Improvement Program vs. FY11 Final

### Changes from FY11 Final to FY12 Proposed

- FY12 Proposed CIP increased \$146.7 million or 2.8% above the FY11 Final CIP.
- Increase due to new project requests of \$117.1 million, updated cost estimates of \$41.6 million, offset by lower project awards of \$25.0 million.

	<b>FY11 Final</b>	<b>FY12 Proposed</b>	<b>\$ change</b>	<b>% change</b>	<b>FY09-13 \$ change</b>	<b>FY09-13 % change</b>
Wastewater Systems Improvements	\$2,574.7	\$2,632.5	\$57.8	2.2%	-\$12.8	-2.0%
Waterworks System Improvements	\$2,652.5	\$2,742.2	\$89.8	3.4%	-\$7.1	-2.0%
Business and Operations Support	\$105.6	\$104.7	-\$0.9	-0.8%	-\$1.7	-3.2%
<b>Total MWRA without contingency</b>	<b>\$5,332.8</b>	<b>\$5,479.5</b>	<b>\$146.7</b>	<b>2.8%</b>	<b>-\$21.6</b>	<b>-2.0%</b>



## Major Changes between FY12 Proposed and FY11 Final – Water Projects

### Comparison of Major Changes FY12 Proposed and FY11 Final CIP

Project	FY11 Final	FY12 Proposed	Overall Impact	FY09-13 Impact	Beyond CAP	Notes
Rehabilitation of Pump Stations (Water)	\$0.0	\$25.0	\$25.0	\$0.0	\$25.0	New FY12 project
Covered Storage Tank Rehabilitation	\$0.0	\$5.0	\$5.0	\$0.0	\$5.0	New FY12 project
Elevated Storage Tank Painting	\$0.0	\$5.0	\$5.0	\$0.0	\$5.0	New FY12 project
Long Term Redundancy (various projects)	\$537.5	\$553.8	\$16.4	-\$11.3	\$27.7	Updated cost estimates and inflation
Other FY12 new water projects (smaller)	\$0.0	\$12.2	\$12.2	\$0.2	\$12.0	FY12 new projects - smaller \$
<b>sub-total - water</b>	<b>\$537.5</b>	<b>\$601.0</b>	<b>\$63.6</b>	<b>-\$11.1</b>	<b>\$74.6</b>	



## Major Changes between FY12 Proposed and FY11 Final – Wastewater projects

### Comparison of Major Changes FY12 Proposed and FY11 Final CIP

Project	FY11 Final	FY12 Proposed	Overall Impact	FY09-13 Impact	Beyond CAP	Notes
Clarifier Rehabilitation - Phase 2	\$0.0	\$28.5	\$28.5	\$4.1	\$24.4	New FY12 project
DI Digester & Storage Tank Design and Rehabilitation	\$0.0	\$23.0	\$23.0	\$1.5	\$21.5	New FY12 project
Braintree Weymouth Improvements	\$0.0	\$4.0	\$4.0	\$0.4	\$3.6	New FY12 project
Clinton Phosphorous Removal	\$0.0	\$3.5	\$3.5	\$1.1	\$2.4	New FY12 project - regulatory compliance
Cambridge Sewer Separation	\$64.0	\$55.0	-\$9.0	-\$9.0	\$0.0	Lower awards vs budget
Reserved Channel Sewer Separation	\$73.7	\$67.2	-\$6.5	-\$3.3	-\$3.2	Lower awards vs budget
Brookline Sewer Separation	\$29.6	\$25.7	-\$3.9	-\$3.9	\$0.0	Lower awards vs budget
DITP Asset Protection	\$512.5	\$523.1	\$10.6	-\$18.5	\$29.1	Updated cost estimates and inflation
Other FY12 new wastewater projects (smaller)	\$0.0	\$8.8	\$8.8	\$5.1	\$3.7	FY12 new projects - smaller \$
<b>sub-total - wastewater</b>	<b>\$679.8</b>	<b>\$738.7</b>	<b>\$59.0</b>	<b>-\$22.5</b>	<b>\$81.5</b>	
<b>TOTAL</b>	<b>\$1,224.5</b>	<b>\$1,342.0</b>	<b>\$117.4</b>	<b>-\$38.7</b>	<b>\$156.1</b>	

Approximately 80% of the total changes are represented on this and the preceding slide.



Massachusetts Water Resources Authority

## **Capital Financing**



## Credit Strength

- Access to the capital markets is essential to the Authority's overall mission.
- Preservation of strong credit ratings is important not only to accessing the capital markets but also reducing the interest costs on borrowed funds.
- The Authority currently has strong credit ratings of AA+, AA+, and Aa1, from Standard and Poor's, Fitch Ratings, and Moody's Investor Service, respectively.
- One factor cited in the Authority's January 2009 upgrade from Standard and Poor's was its "strong management, which has generated a trend of satisfactory reserves and solid liquidity over a multi-year period while successfully implementing numerous large construction projects."



## Summary of MWRA Credit Quality

- **Strong Security Provisions**
  - Local Aid Intercept
  - 120% Primary Coverage Ratios
  - 10% Supplemental Coverage Requirement (CORE)
  - 110% coverage for Combined Senior and Subordinate Debt
  
- **Substantial Reserves Totaling Over \$420 Million (June 30, 2010)**
  - Operating, Insurance, Renewal and Replacement, CORE and Debt Service Reserves, and Rate Stabilization and Bond Redemption Funds
  
- **Strong And Stable Credit Quality**
  - 100% collection rate in each fiscal year
  - 100% of communities with debt rated investment grade or better

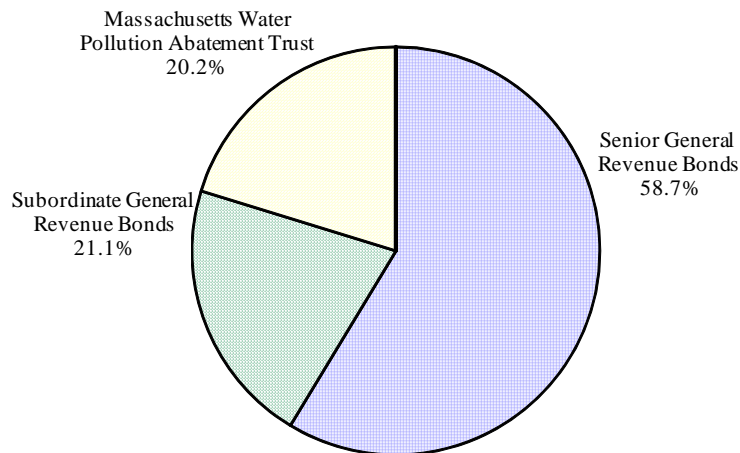


## MWRA's Debt Portfolio - as of April 1, 2011

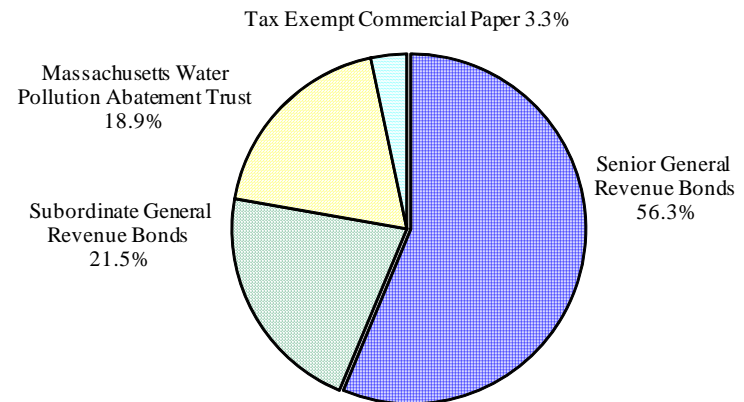
Type	FY11 Debt Service Budget	% of Total	Principal Outstanding April 1, 2011	% of Total
Senior General Revenue Bonds	\$ 199,692,592	58.7%	\$ 3,287,590,000	56.3%
Subordinate General Revenue Bonds	\$ 71,841,357	21.1%	\$ 1,252,650,000	21.5%
Massachusetts Water Pollution Abatement Trust	\$ 68,939,902	20.2%	\$ 1,103,956,104	18.9%
Tax Exempt Commercial Paper <sup>(1)</sup>	\$ -	0.0%	\$ 194,000,000	3.3%
<b>Total</b>	<b>\$ 340,473,851</b>	<b>100.0%</b>	<b>\$ 5,838,196,104</b>	<b>100.0%</b>

(1) The debt service on tax exempt commercial paper (TECP) is capitalized until the financed asset is put into service, at which time the TECP is permanently financed.

**Fiscal Year 2011 Debt Service**



**Principal Outstanding**



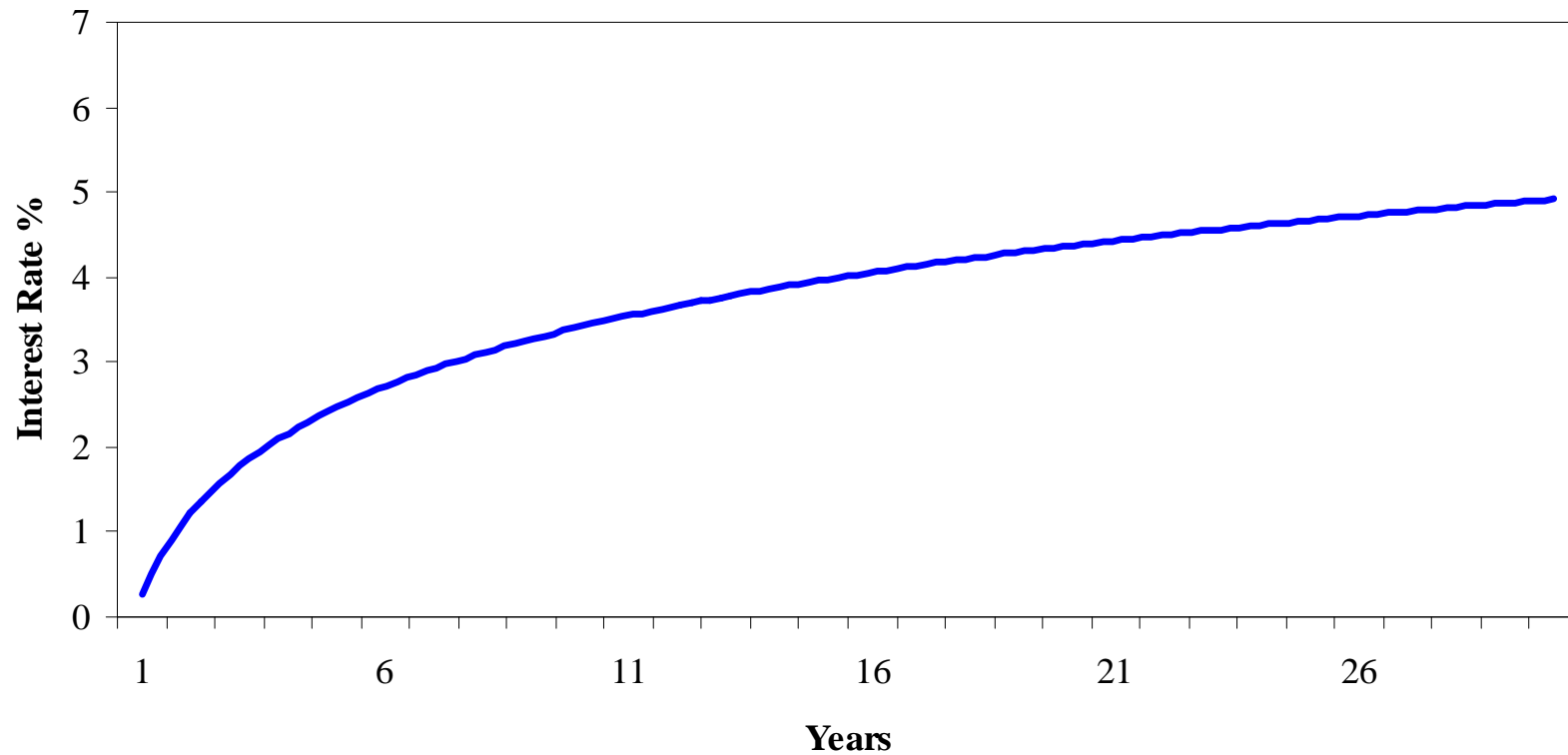




## Traditional Yield Curve

- Short-term rates are typically lower than long-term rates

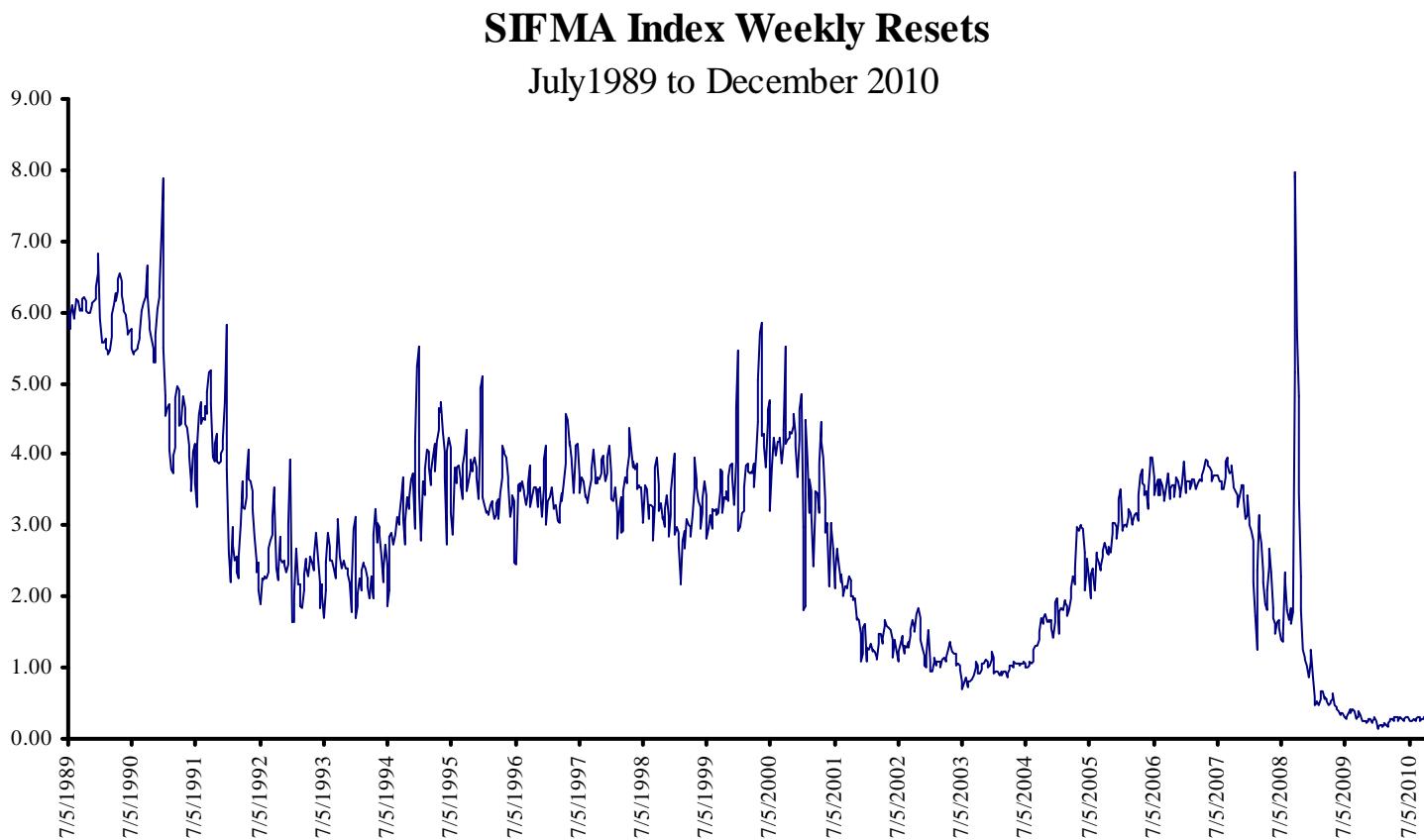
### Traditional Yield Curve





## SIFMA Index Weekly Resets – July 1989 to December 2010

- Variable interest rates are subject to market volatility





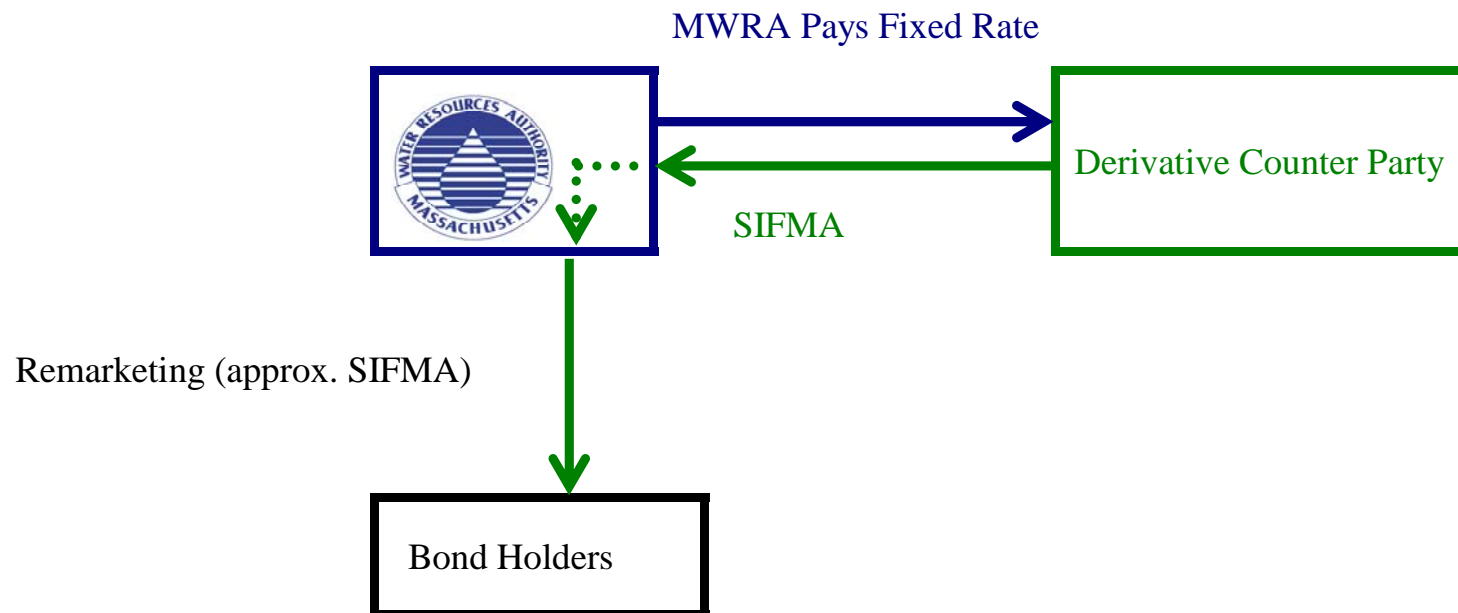
## Variable Rate Program

- Variable Rate Demand Obligations (VRDO)
  - Remarketing Costs
  - Liquidity Costs
    - Recent Procurement
  - Interest
    - Expected Level
    - Volatility



## Synthetically Fixed Rate Debt

- Derivative transactions are a means to mitigate against fluctuations in the variable rate market by making them synthetically fixed rate.
  - Derivative transactions can also be used to increase variable rate exposure by making fixed rate bonds synthetically variable.
  - while providing a lower cost of debt than traditional fixed rate.

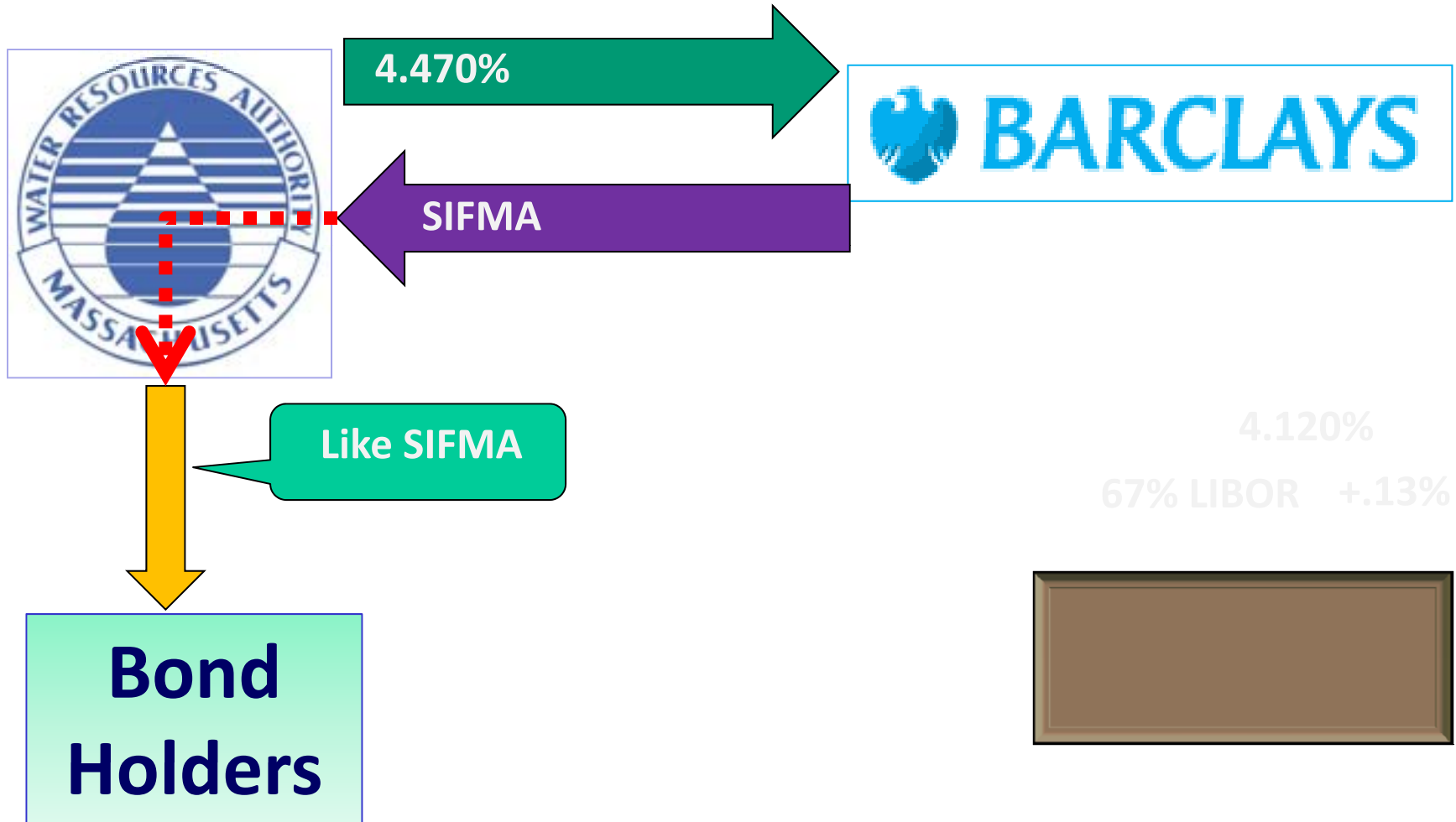




- Risk Transfer
  - Volatility transferred to Counterparty
  - MWRA takes:
    - Counterparty Risk
    - Basis Risk
    - Termination Risk
    - Collateral Risk
    - Tax Risk



# Recent Barclays Swap Amendment





**QUESTIONS?**