

# BUILDING A WORLD OF DIFFERENCE

10 JULY 2013

## WATER & WASTEWATER COST OF SERVICE STUDY

NATURAL RESOURCES & CULTURE COMMITTEE



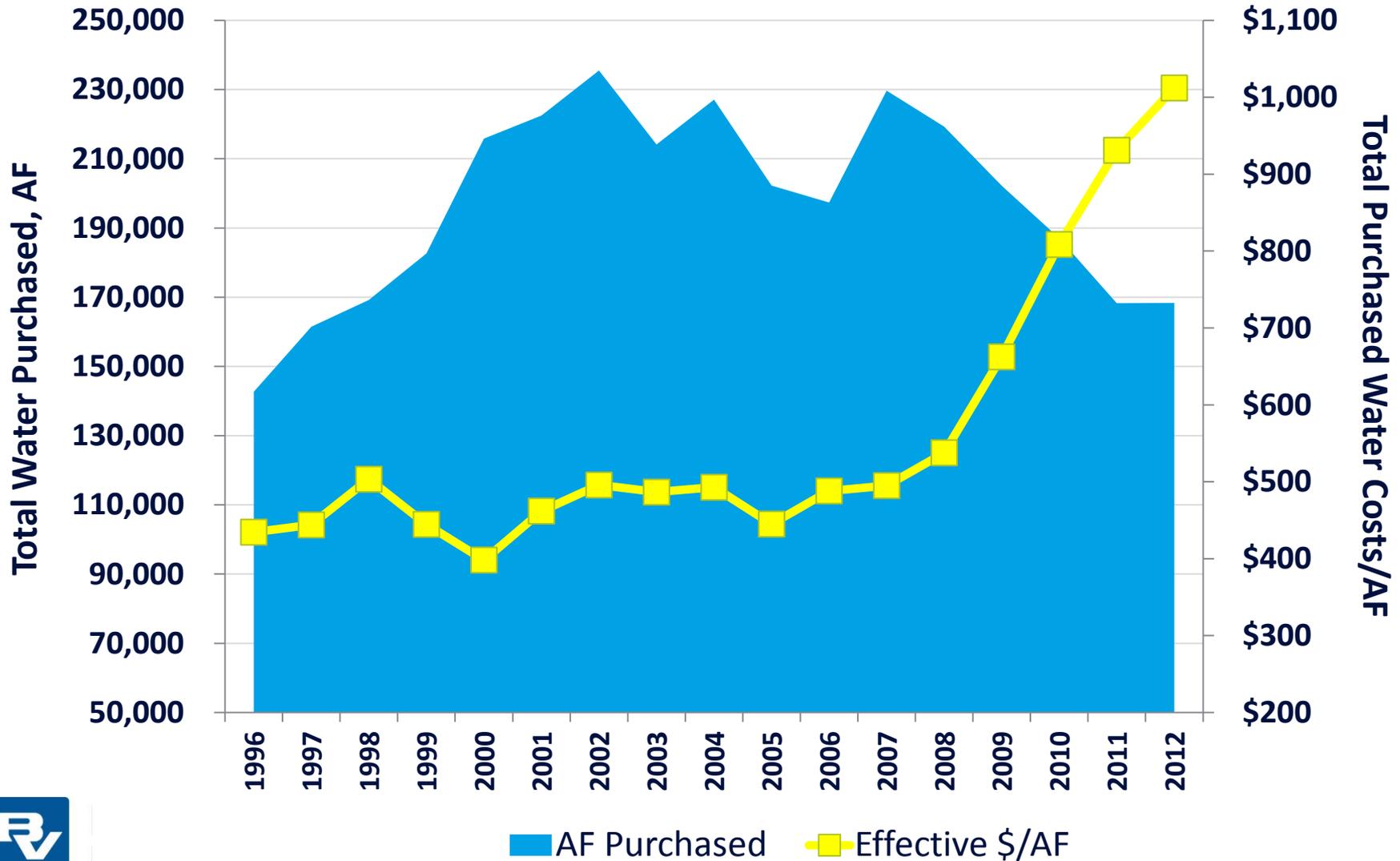
**BLACK & VEATCH**  
Building a world of difference.®

# WHAT WE'VE COVERED SO FAR...

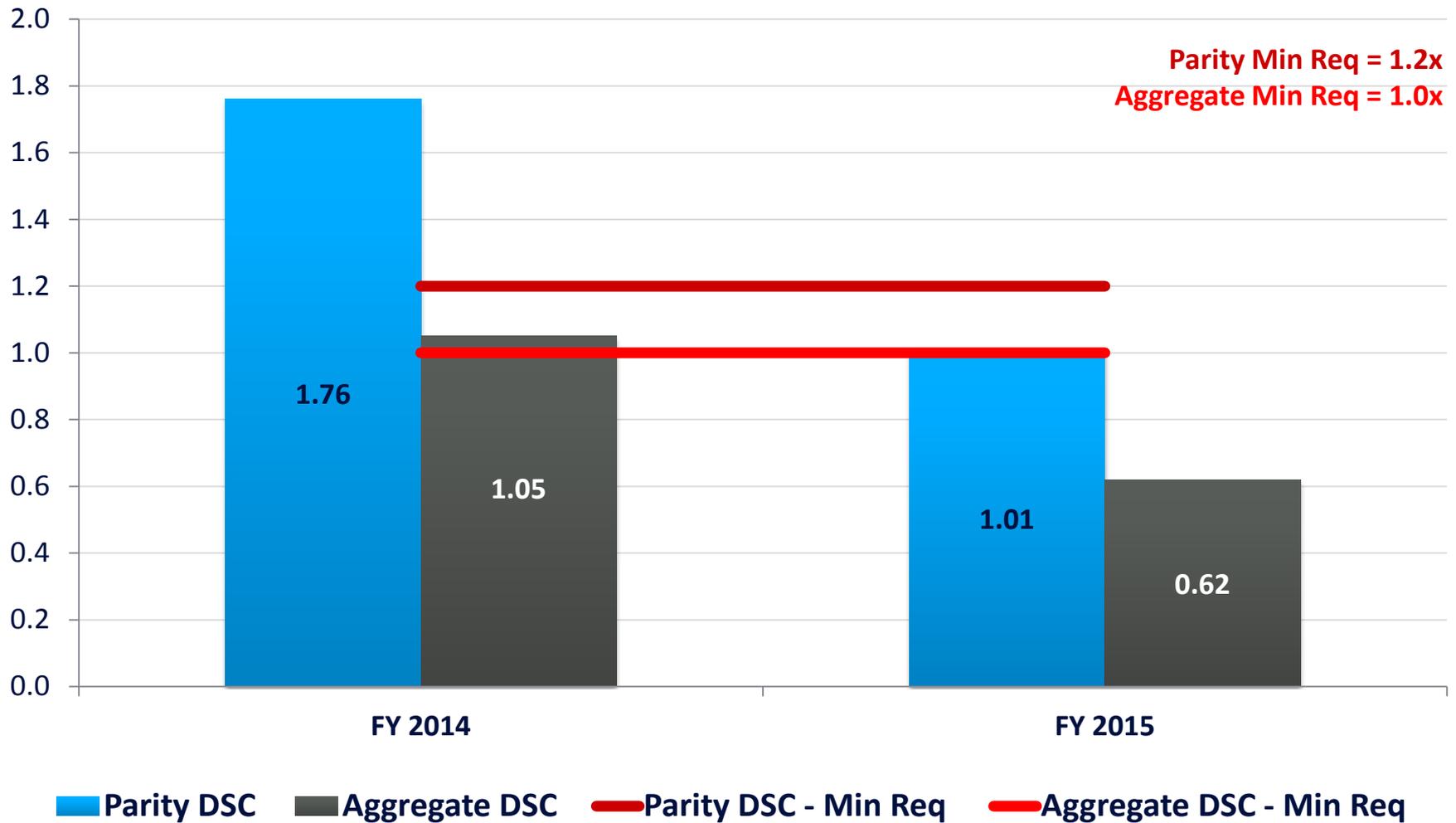
# KEY ELEMENTS FOR FINANCIAL VIABILITY



# INCREASING WATER PURCHASE COSTS

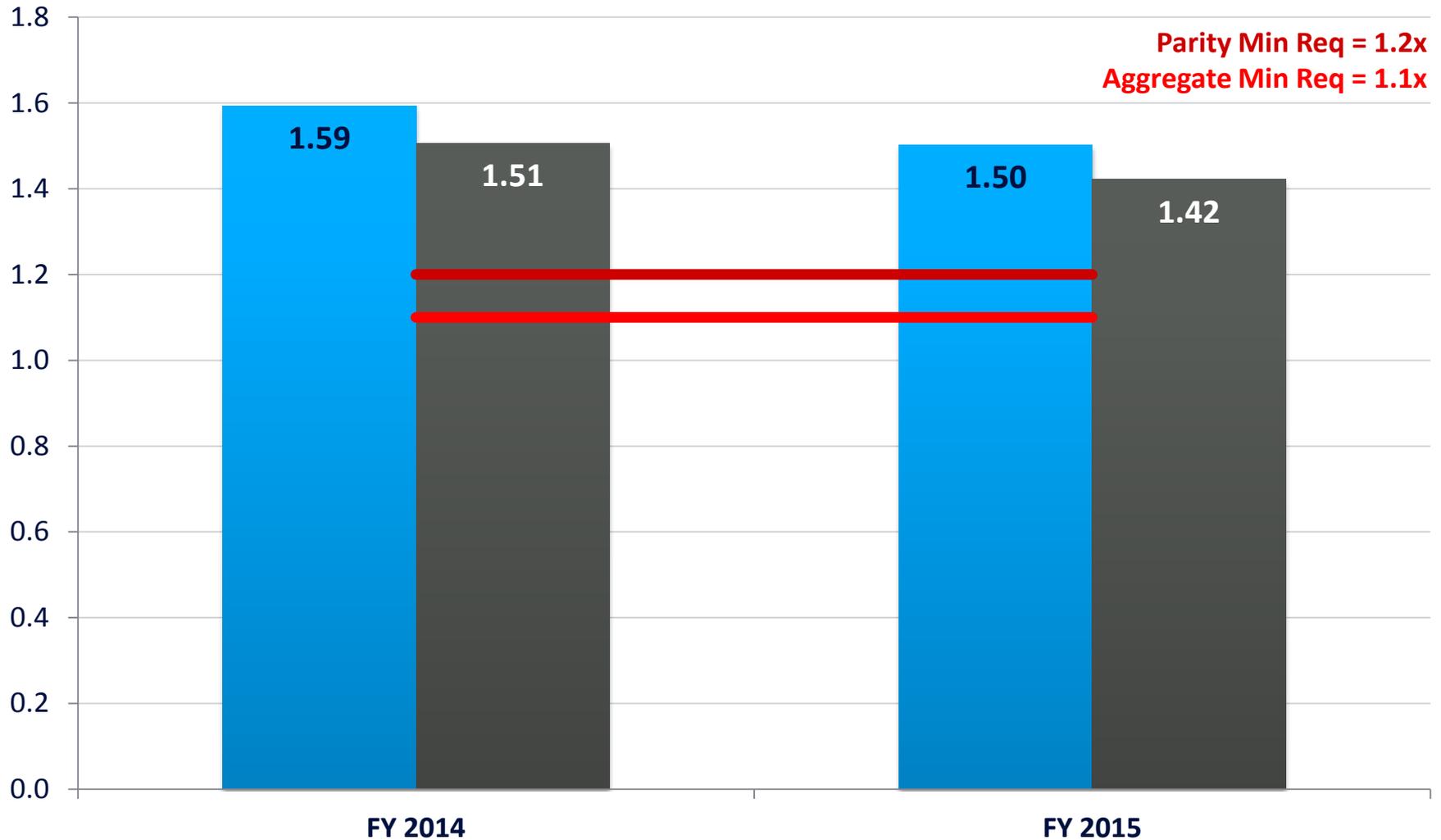


# WATER DEBT SERVICE COVERAGE ABSORBING FY 14 / 15 CWA INCREASES

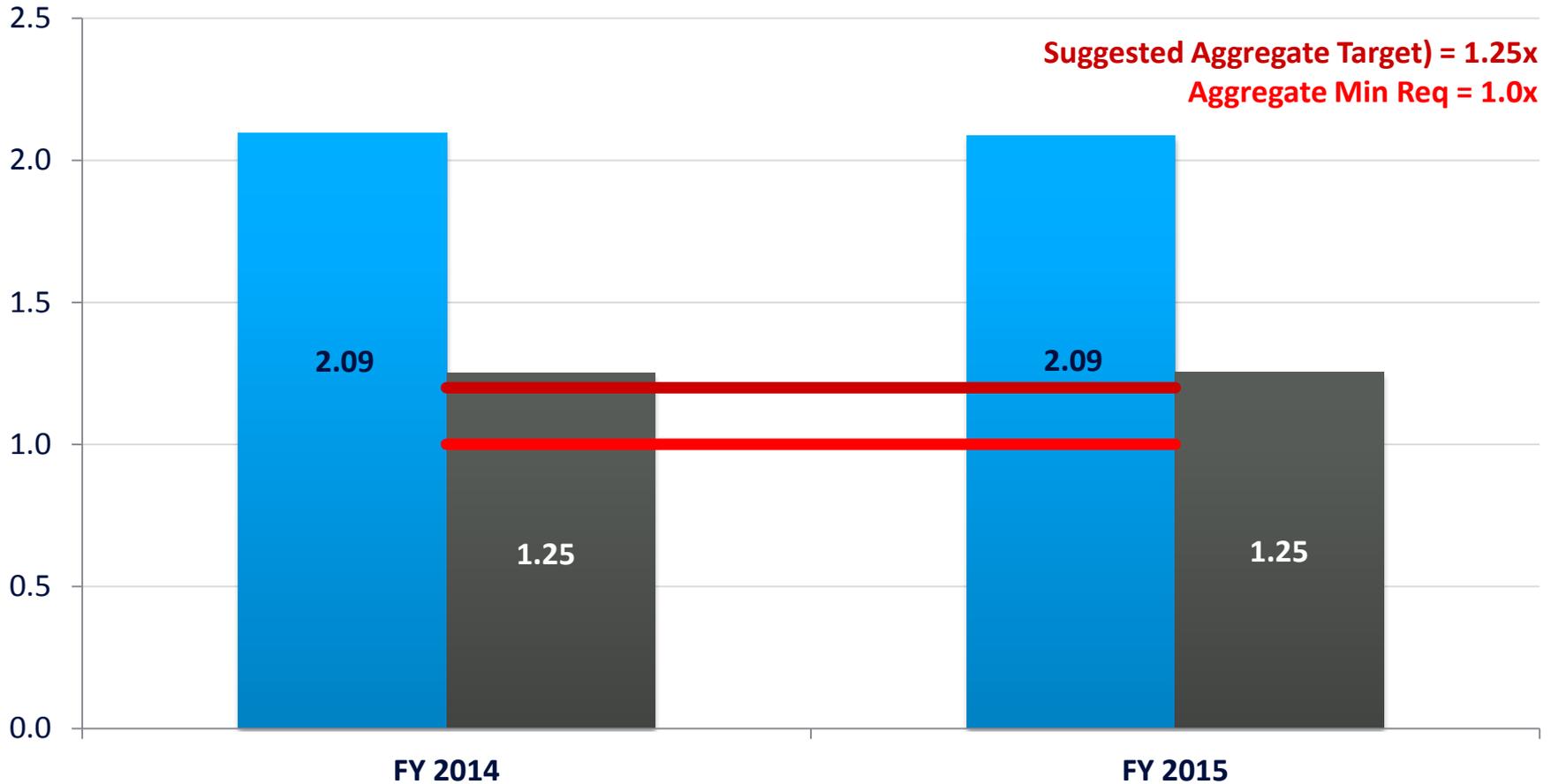


# WASTEWATER DEBT SERVICE COVERAGE

## FY14 – FY15



# WATER DEBT SERVICE COVERAGE FY14 – FY15 WITH PROPOSED REVENUE ADJUSTMENTS



■ Parity DSC   
 ■ Aggregate DSC   
 — Parity DSC - Min Req   
 — Aggregate DSC - Min Req





# REVENUE REQUIREMENTS - SUMMARY

## ■ Water

- Continued absorption of CY 12 and CY 13 CWA increases is not sustainable
- Recommend incorporating CY 14 CWA increases as a pass-thru cost
- Set 1.25x DSC target for aggregate debt
- FY 14 revenue adjustment = 5.0% to partially covers impact of CY 12 and CY 13 CWA increases PLUS 2.25% for CY 14 increases
- FY 15 revenue adjustment = 7.0% for CY 12, CY 13, and CY 14 and projected CY 15 CWA increases PLUS 0.5% to meet suggested debt service coverage level

## ■ Wastewater

- No proposed revenue adjustments



# WHAT EXACTLY DOES “COST OF SERVICE” MEAN?



# COST OF SERVICE STUDY FOCUS & CONSIDERATIONS

To **match** the costs of providing service to customer classes and to **design** rates to equitably recover costs



Current study does not look at impacts due to Desalination, IPR, or Point Loma Secondary costs



# COST ALLOCATION

- **Objective**

- Allocate the costs of operating the utility to the respective customers

- **How is the allocation accomplished?**

1. Select a Test Year
2. Allocate costs to utility functions according to cost causative parameters
3. Estimate total customer class service requirements for each cost function
4. Divide costs by requirements for each function to get unit costs of service
5. Distribute costs to each customer class based on its share of total requirements for each cost function

# 1. SELECT TEST YEAR – FY 14

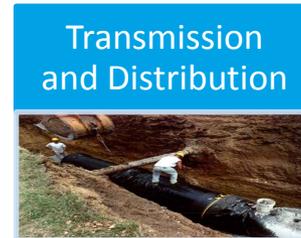
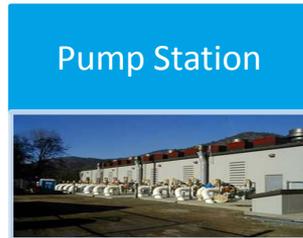
DRAFT – SUBJECT TO CHANGE

Line Item	Operating Costs (\$000s)	Capital Cost (\$000s)	Total Cost (\$000s)
<b>Revenue Requirements</b>			
O&M Expenses	154,813.00		154,813.00
Water Supply	220,110.10		220,110.10
Debt Service		66,834.70	66,834.70
Transfers	185.50	39,926.50	40,112.00
<i>Subtotal</i>	<i>375,108.60</i>	<i>106,761.20</i>	<i>481,869.80</i>
<b>Less Other Revenues</b>			
Other Revenues	56,417.60		56,417.60
Transfers	18,000.00		18,000.00
<i>Subtotal</i>	<i>74,417.60</i>		<i>74,417.60</i>
<b>Cost of Service Recovered from Rates</b>	<b>300,691.00</b>	<b>106,761.20</b>	<b>407,452.200</b>



## 2. COST FUNCTIONS & COST CAUSATIVE PARAMETERS

- Separate O&M and Capital Costs into Cost Functions



- Distribute O&M and Capital Costs into Cost Causative Parameters



Base Costs

Extra Capacity Costs

Customer Costs

Direct Costs



### 3. ALLOCATE COSTS

- **O&M costs are allocated to functional cost components:**
  - Reviewed historic expenses charged to functional cost areas
  - Followed industry guidelines
  - Water Supply costs separated into Base and Customer costs to more accurately reflect cost elements
    - Approximately 30% of purchased water supply costs are fixed
  
- **Capital costs are allocated using Net Plant Investment**
  - Net plant investment (Original Cost Less Depreciation) serves as proxy for debt allocation
  - NPI allocated to functional cost areas

## 4. CALCULATE UNIT COSTS

System Costs



Units of Service



Unit Costs

### Base and Extra Capacity Costs

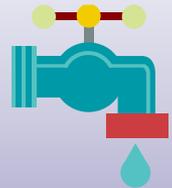
Volume



CCF



\$/CCF



### Customers Costs

Customer



No. of Bills



\$/Bill



### Direct Costs

Fire Protection



No. of Eq.  
Hydrants



\$/Eq. Hydrant



**CCF = Hundred Cubic Feet, 1 CCF = 748 Gallons**

## 4. CALCULATE UNIT COSTS (CONT'D)

Item	Total Cost (\$000s)	Common to All			Customer Costs		Direct
		Base (\$000s)	Max Day (\$000s)	Max Hour (\$000s)	Meters (\$000s)	Billing (\$000s)	Fire Protection (\$000s)
Net O&M	300,691.0	195,341.7	13,806.5	10,628.1	44,391.1	31,585.6	4,938.0
Net Capital Costs	106,761.2	57,131.2	24,900.8	22,395.2	2,187.0	0	183.0
<b>Total COS</b>	<b>407,452.2</b>	<b>252,472.9</b>	<b>38,707.3</b>	<b>32,987.3</b>	<b>46,578.1</b>	<b>31,585.6</b>	<b>5,121.0</b>
No. Units		76,388,255	184,756	295,808	400,329	3,388,416	32,196
Unit		CCF	CCF/Day	CCF/Day	Equiv. Meters	Bills	Equiv. Hydrants
<b>\$/Unit</b>		<b>\$3.31</b>	<b>\$209.50</b>	<b>\$111.52</b>	<b>\$116.35</b>	<b>\$9.32</b>	<b>\$159.06</b>

Where does this come from?



## 4. CALCULATE UNIT COSTS (CONT'D)

### ■ System Peaking Factors

- Max day = 1.5x Base
- Max hour = 1.5x Max Day = 2.25x Base

### ■ Allocation of costs

- System Costs use System Peaking Factors
- Customer Costs use billing data patterns

		Percentage Allocations		
	Demand Factor	Base	Max Day	Max Hour
Base	1.0	100%		
Max Day	1.5	66.7%	33.3%	
Max Hour	2.25	44.4%	22.2%	33.3%





## 5. DISTRIBUTE COSTS TO CUSTOMER CLASSES

Volume Unit Cost x Residential Units (CCF) = \$

Customer Unit Cost x Residential Units (Bills) = \$

Fire Unit Cost x Residential Units (Eq. Hydrants) = \$

Total Residential Cost of Service = \$

Same Calculation for Other Customer Classes



## 6. COMPARE COST OF SERVICE TO REVENUES UNDER EXISTING RATES

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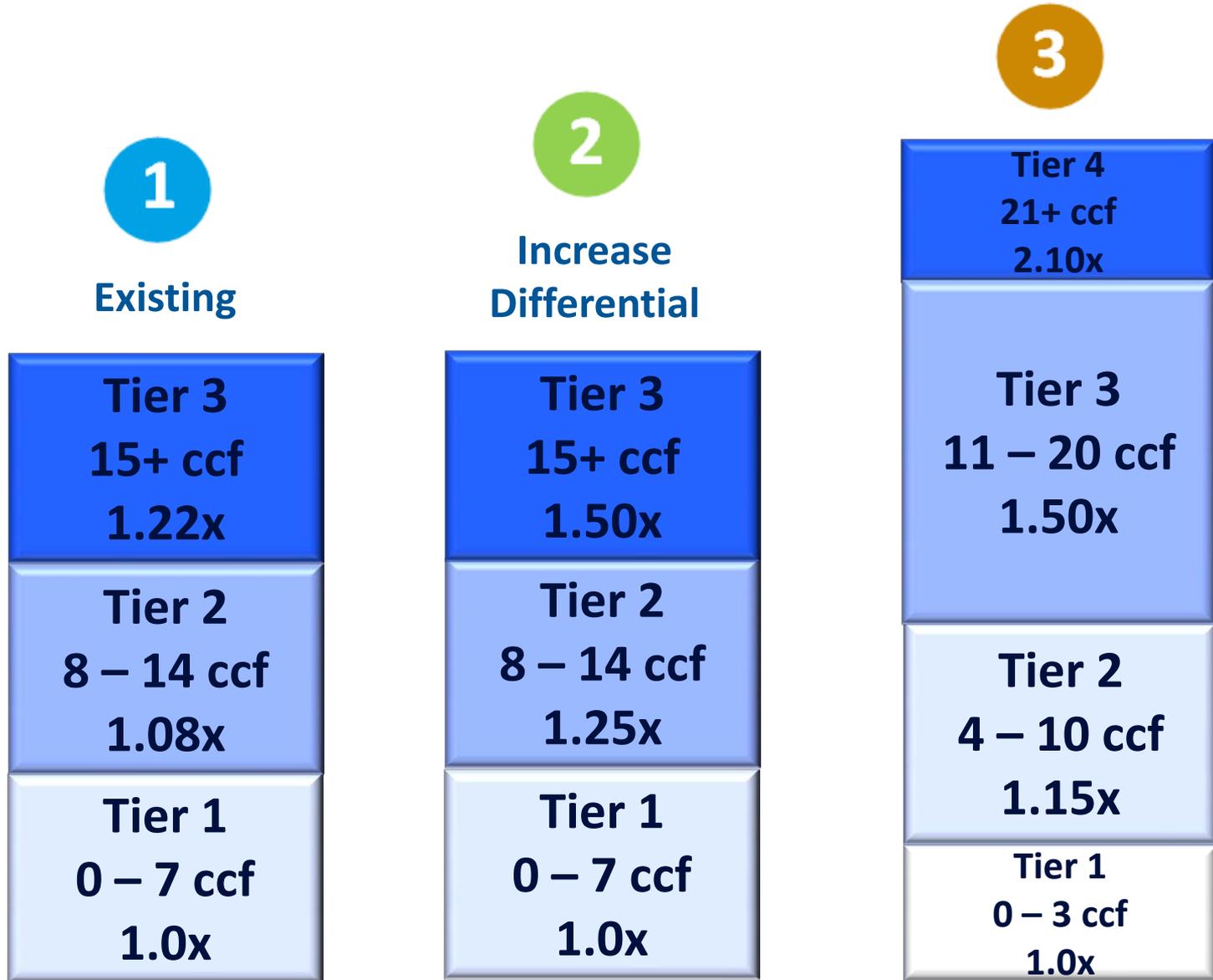
Customer Class	Allocated COS (\$000s)	Beneficial Use (\$000s)	Adjusted COS (\$000s)	Revenue Under Existing Rates (\$000s)	Indicated Revenue Adjustment (%)
Single Family	169,132.5	2,324.7	171,457.2	160,376.0	6.91
Multi Family	86,174.5	1,184.4	87,358.9	82,090.2	6.42
Non Residential	92,232.2	1,267.7	93,499.9	87,273.5	7.13
Construction	1,375.2		1,375.2	1,286.4	6.90
Irrigation	51,777.2		51,777.2	47,111.8	9.90
<i>Subtotal</i>	<i>400,691.6</i>	<i>4,776.8</i>	<i>405,468.4</i>	<i>378,137.9</i>	<i>7.23</i>
Public Fire	4,776.8	-4,776.8	0	0	0
Private Fire	1,983.8		1,983.8	1,770.9	12.02
<b>TOTAL</b>	<b>407,452.2</b>	<b>0</b>	<b>407,452.2</b>	<b>379,908.8</b>	<b>7.25</b>



**HOW DOES THAT  
TRANSLATE INTO  
WHAT I PAY?**



# 3 SFR TIER RATE STRUCTURE OPTIONS





# NON-RESIDENTIAL RATE STRUCTURE OPTIONS

## Irrigation Customers

### 1. Keep existing structure

- Uniform Rate

### 2. Develop 3-tiered rate structure

- Pricing differential of 1.0x, 1.25x, and 1.50x

**Multi-family, Commercial & Industrial remain the same**

**No change for wastewater rates**





# RATE STRUCTURE AND PASS-THRU ADJUSTMENTS

- City has an approved methodology for calculating the impact of purchased water increases
- Rates presented on the following slides reflect:
  - Changes to rate structure made assuming 5% revenue adjustment
  - Resulting structure is then adjusted to recover proposed CY 14 CWA increases in accordance with pass-thru formula



# METER CHARGE

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Meter Size	Meter Charge			
	Existing Rates	Option 1	Option 2	Option 3
	(\$/monthly)	(\$/monthly)	(\$/monthly)	(\$/monthly)
5/8", 3/4"	19.33	20.34	18.89	18.89
1"	28.46	29.95	25.59	25.59
1.5"	49.34	51.94	40.89	40.89
2"	75.44	79.42	60.03	60.03
3"	136.74	143.98	104.98	104.98
4"	224.15	236.03	169.07	169.07
6"	440.73	464.10	327.86	327.86
8"	701.64	738.85	519.16	519.16
10"	1,006.94	1,060.36	742.99	742.99
12"	1,875.82	1,975.34	1,380.05	1,380.05
16"	3,267.86	3,441.25	2,400.67	2,400.67





# PRIVATE FIRE PROTECTION

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Line Size	Fire Protection			
	Existing Rates (\$/monthly)	Option 1 (\$/monthly)	Option 2 (\$/monthly)	Option 3 (\$/monthly)
5/8", 3/4"				
1"	6.26	6.57	2.40	2.40
1.5"	6.26	6.57	2.40	2.40
2"	8.35	8.77	3.73	3.73
3"	12.53	13.16	14.42	14.42
4"	16.70	17.54	18.44	18.44
6"	25.05	26.30	27.23	27.23
8"	33.40	35.07	38.46	38.46
10"	41.75	43.84	49.68	49.68
12"	50.10	52.61	59.29	59.29
16"	66.80	70.14	96.14	96.14





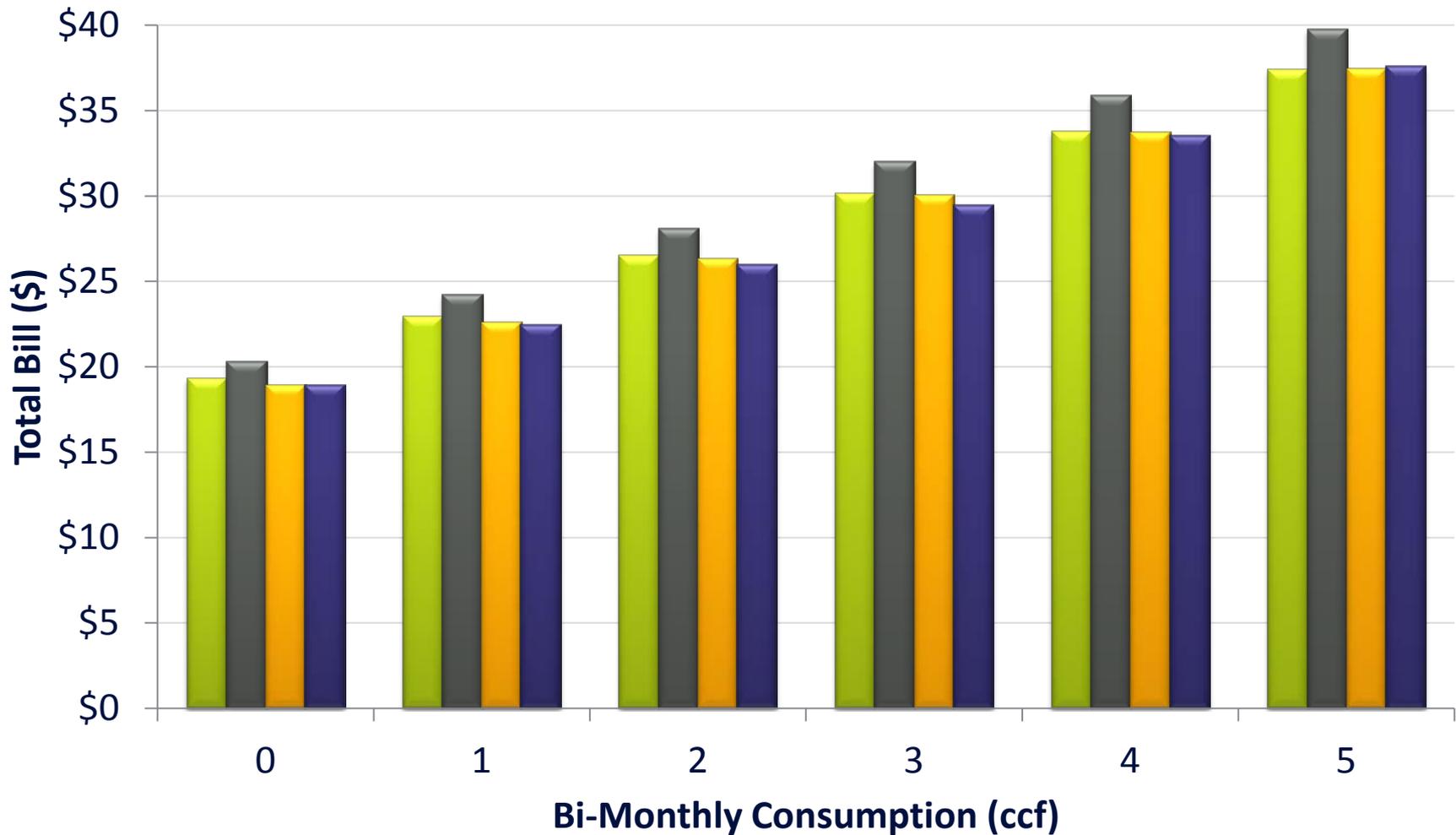
# COMMODITY CHARGES

Class	Tiers		Commodity Charge			Tiers		Commodity Charge
	From	To	Existing Rates	Option 1	Option 2	From	To	Option 3
	ccf	ccf	\$/ccf	\$/ccf	\$/ccf	ccf	ccf	\$/ccf
Single Family	0	7	3.61	3.89	3.71	0	3	3.52
	8	14	3.92	4.21	4.62	4	10	4.05
	15+		4.40	4.72	5.54	11	20	5.29
						21+		7.40
Other Domestic			3.92	4.21	4.34			4.34
Non Residential			3.76	4.04	4.17			4.17
Temp Construction			4.01	4.31	4.62			4.62
Irrigation			4.01	4.31	4.62	0	7	2.33
						8	14	3.49
						15+		4.89

**DRAFT – SUBJECT TO CHANGE**

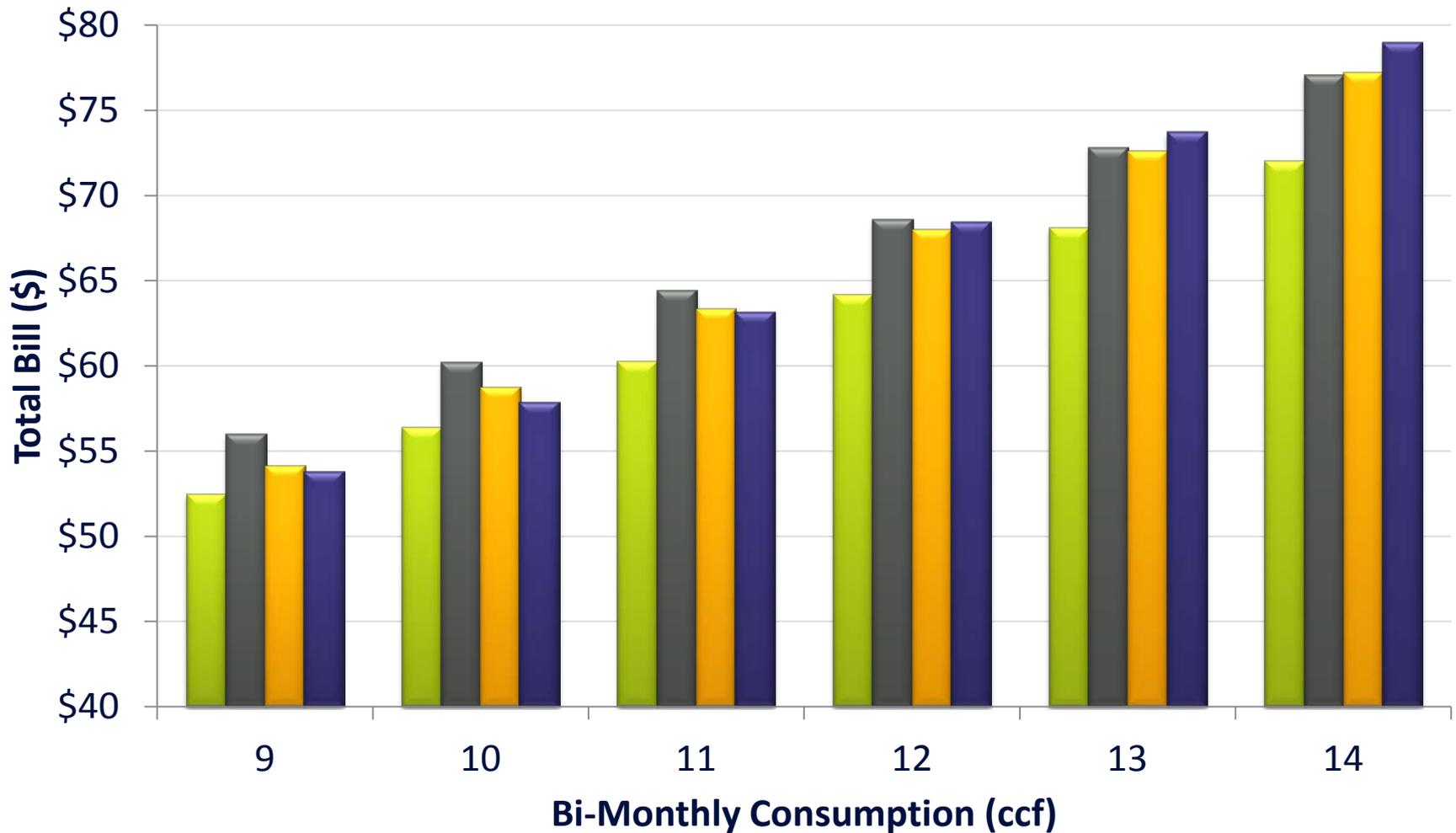


# CHANGE IN BI-MONTHLY SFR BILLS - LOW USE



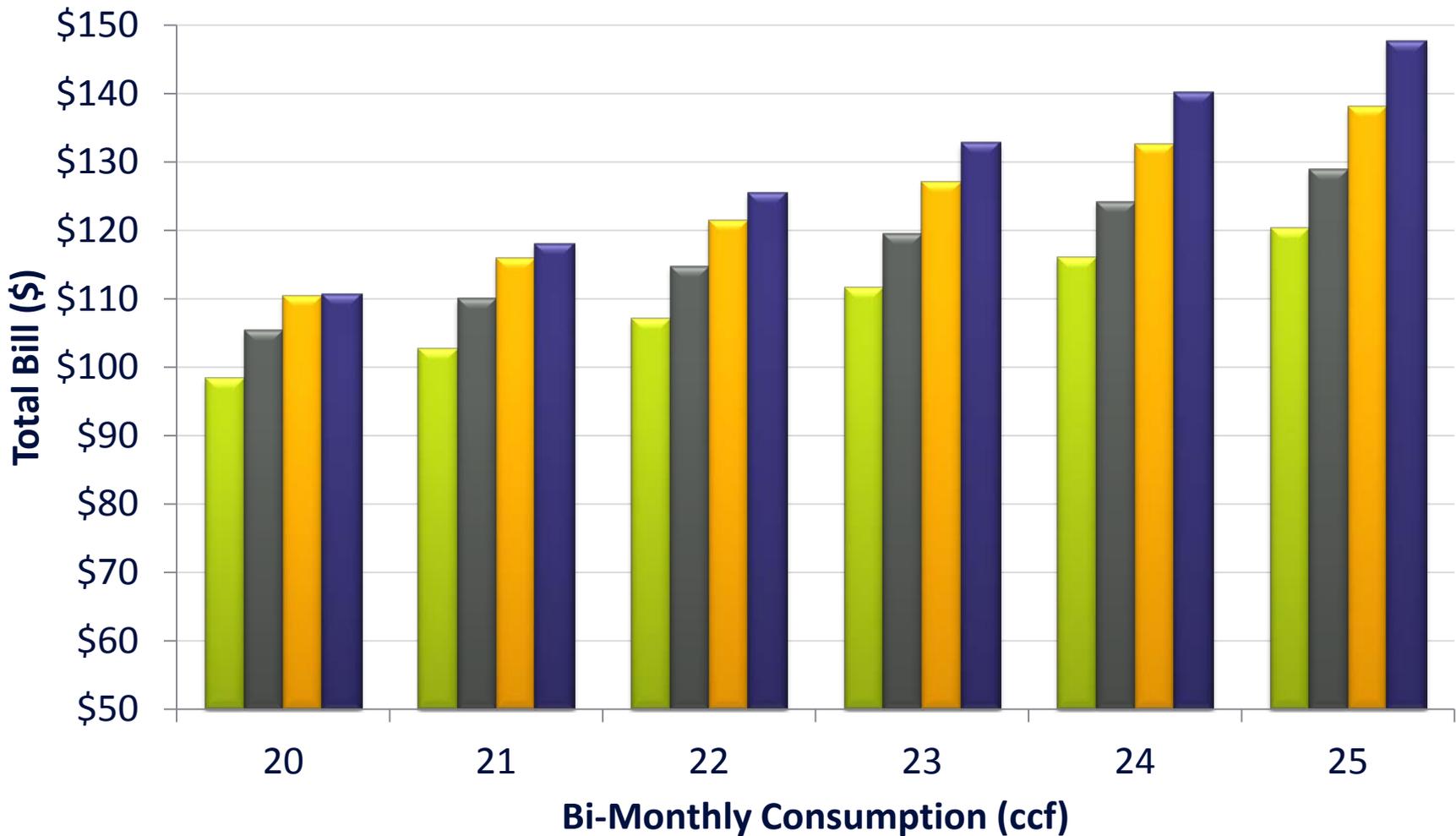
■ Existing Bill   
 ■ Option 1   
 ■ Option 2   
 ■ Option 3

# CHANGE IN BI-MONTHLY SFR BILLS – MEDIUM USE



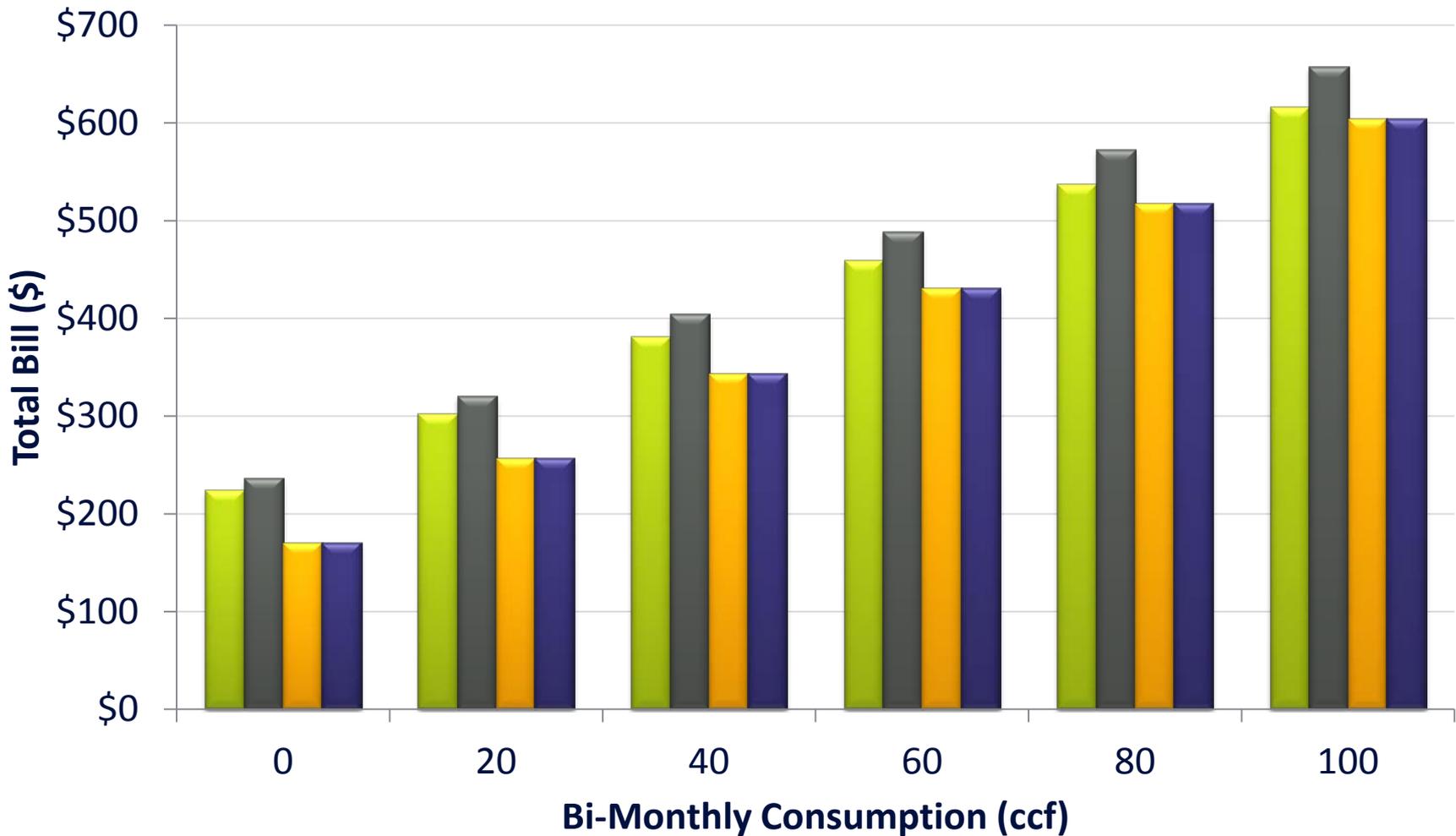
■ Existing Bill   
 ■ Option 1   
 ■ Option 2   
 ■ Option 3

# CHANGE IN BI-MONTHLY SFR BILLS – HIGH USE



■ Existing Bill   
 ■ Option 1   
 ■ Option 2   
 ■ Option 3

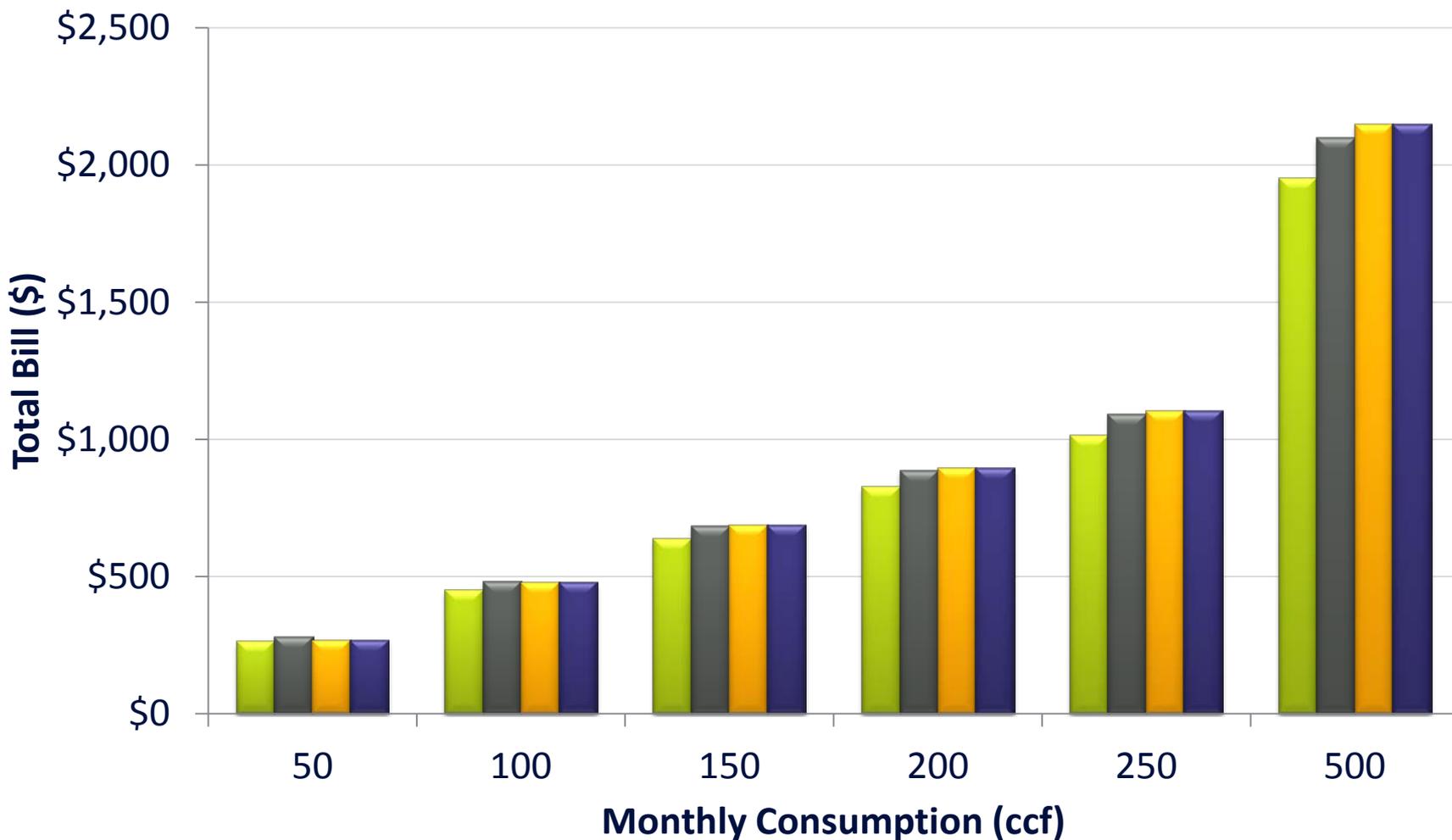
# CHANGE IN MULTI-FAMILY BILLS 4" METER



Existing Bill   Option 1   Option 2   Option 3

# CHANGE IN NON-RESIDENTIAL BILLS

## 2" METER

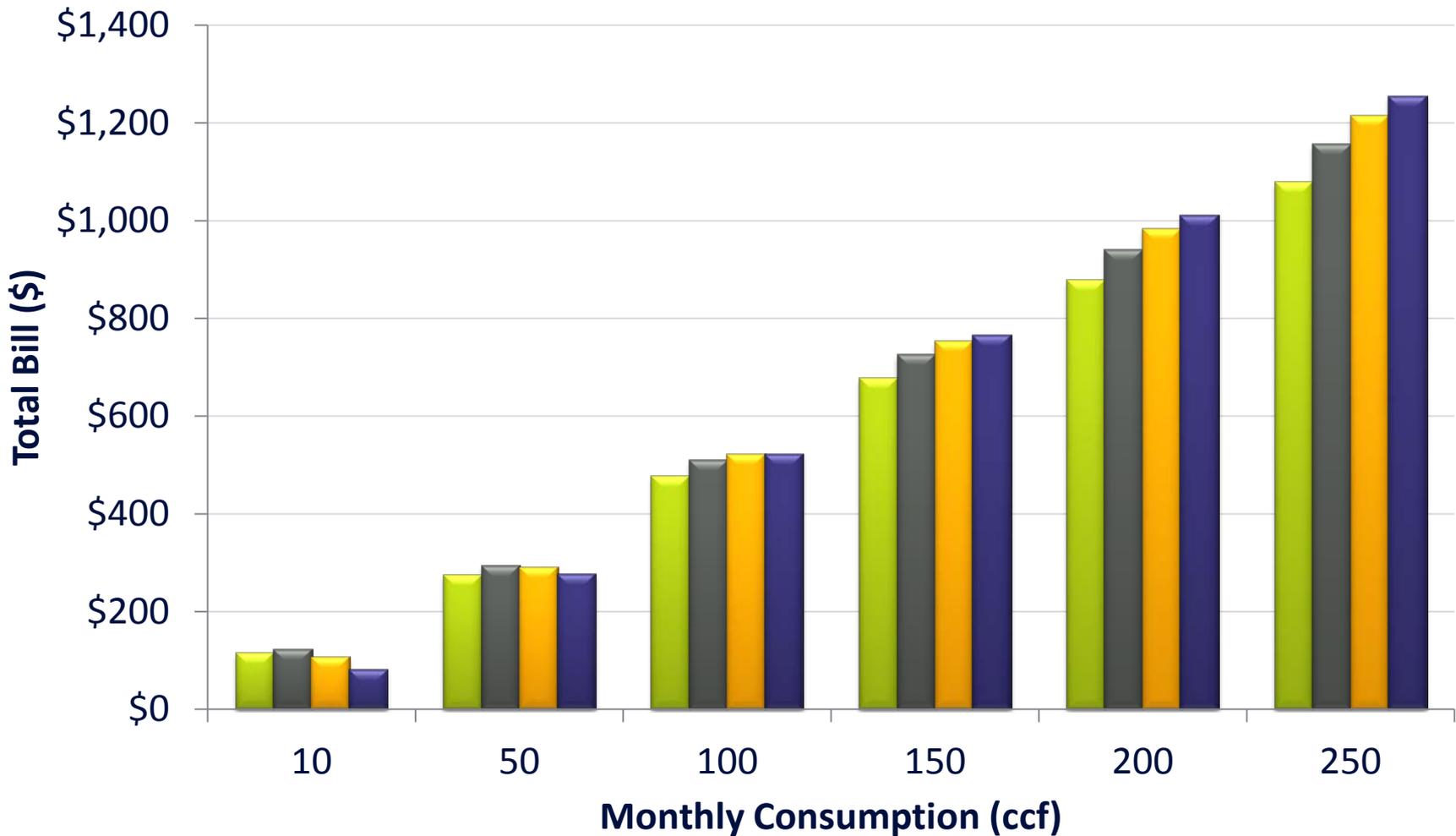


■ Existing Bill   
 ■ Option 1   
 ■ Option 2   
 ■ Option 3



# CHANGE IN IRRIGATION BILLS

## 2" METER



Existing Bill   Option 1   Option 2   Option 3

# QUESTIONS