Application of Model Modifications to a Georgia Utility – Clayton County Water Authority

GAWP Pre-conference Workshop

Utility Resilience – In the Face of Lower Per Capita Consumption, Increasing Water Prices, and a Different Economic Environment

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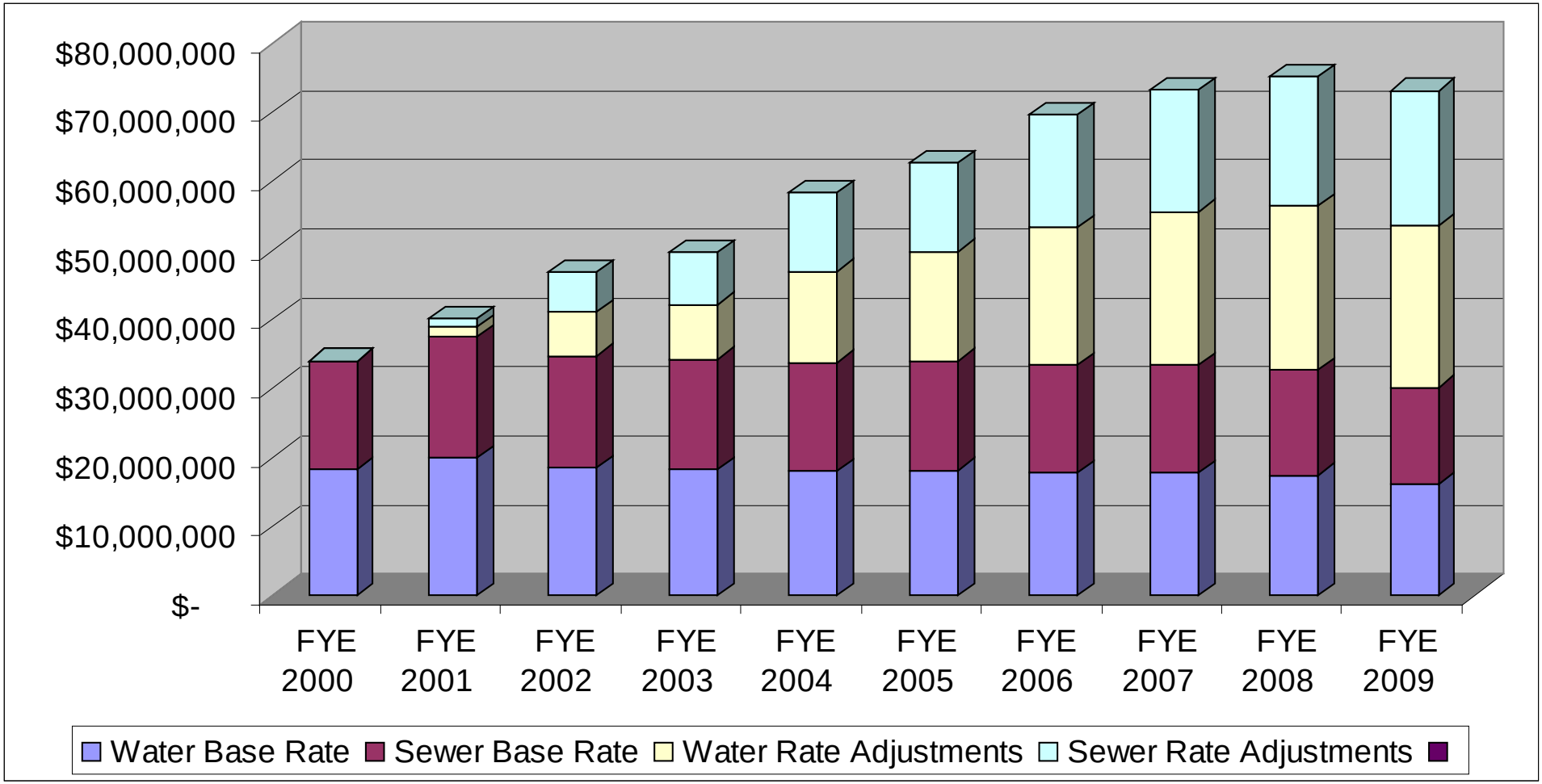
Outline

- Utility Revenue/Rate Concerns
  - CCWA
  - History
  - Rate characteristics
- Model Modifications Applied to CCWA historic data
  1. Water Budget-Based Rates
  2. Customer*select* Alternative
  3. Peak-set base Alternative
  4. Dividend Alternative

Utility Revenue Concerns

- Declining Use and Declining Revenue
- Capital Financing Needs
- High % fixed costs – need for predictable revenue
- Understanding and acceptance of rate structures and increases
  - Elected official and customers
- Water Conservation Issues and regulatory concerns

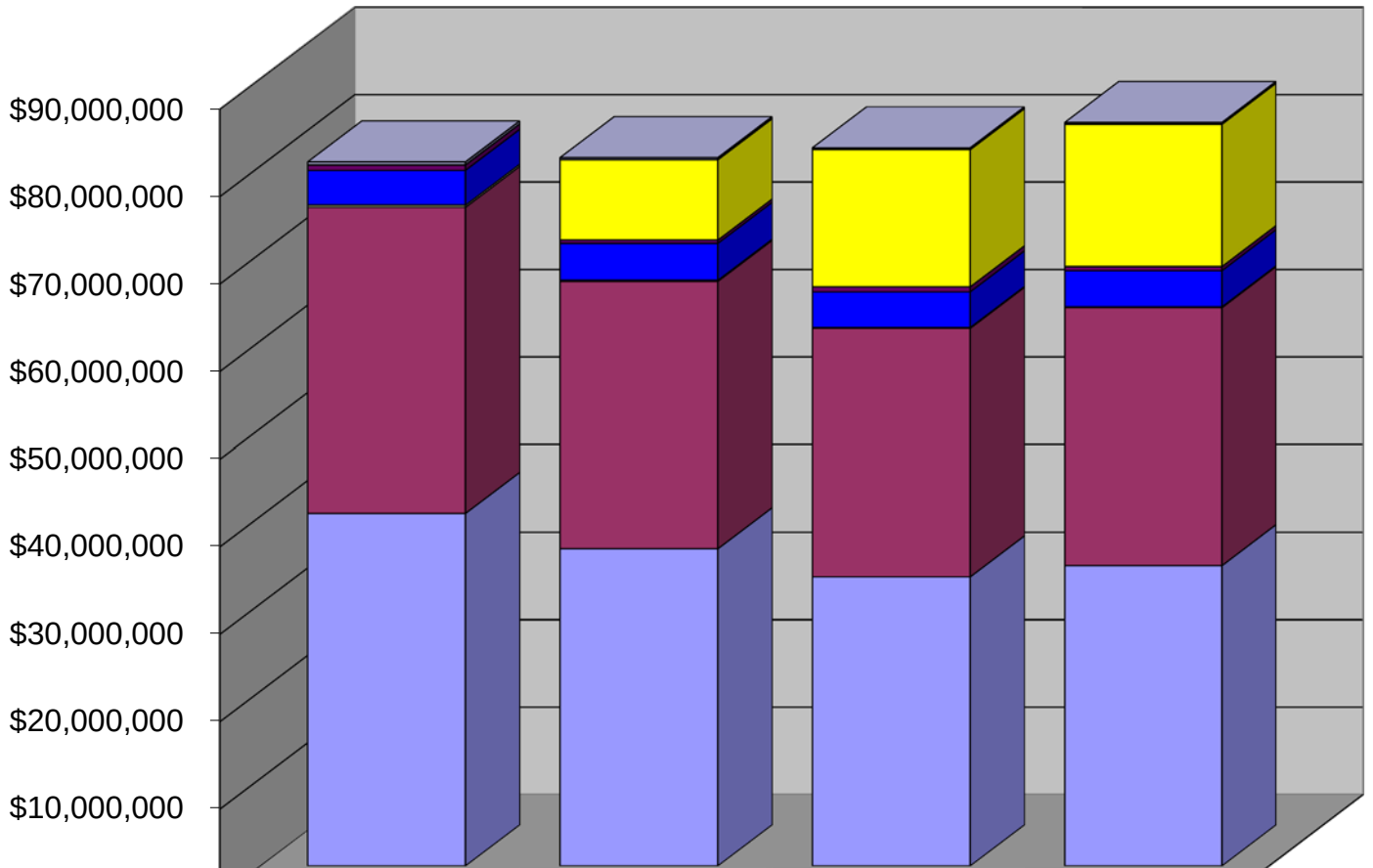
Current Revenue Characteristics



Utility Revenue Concerns

- Revenue stability, predictability
  - Expenses dominated by fixed costs, revenue dominated by volumetric charge

Current Revenue Characteristics



Utility Revenue Concerns

- Elected official and customer understanding
  - Tiered rates, base charge, etc.
  - The rain is free, why do you charge me for it??
- Impact of mandated conservation
  - Per capita use continues to drop but expenses do not
  - “Since you’re using less water, we’re going to have to raise your rates to make up for lost revenue!”

Current CCWA Rate Structure

- Changed to base rate in 2010
  - Previous minimum was for 3,000 gallons usage
  - Customer confusion and anger – “but I only used 2,000 gallons”
  - Muted conservation signal – no incentive for using less than 3,000 gallons
  - Improve predictability of revenue

Current CCWA Rate Structure

- MNGWPD Requirements – Tiered conservation rates for residential use
  - 1 – 3,000 gal $2.10
  - 4,000 – 7,000 gal $5.05
  - 8,000 – 20,000 gal $6.25
  - >20,000 gal $7.50

Current CCWA Rate Structure

- Other Fees
  - Stormwater utility - $3.75 for residential
    - Commercial - $3.75 per 2,950 sq. ft. impervious
  - Backflow testing and repair
    - Small meters $10/month
    - 1 and 1.5 inch meters $15/month
    - 2 inch and larger $20/month

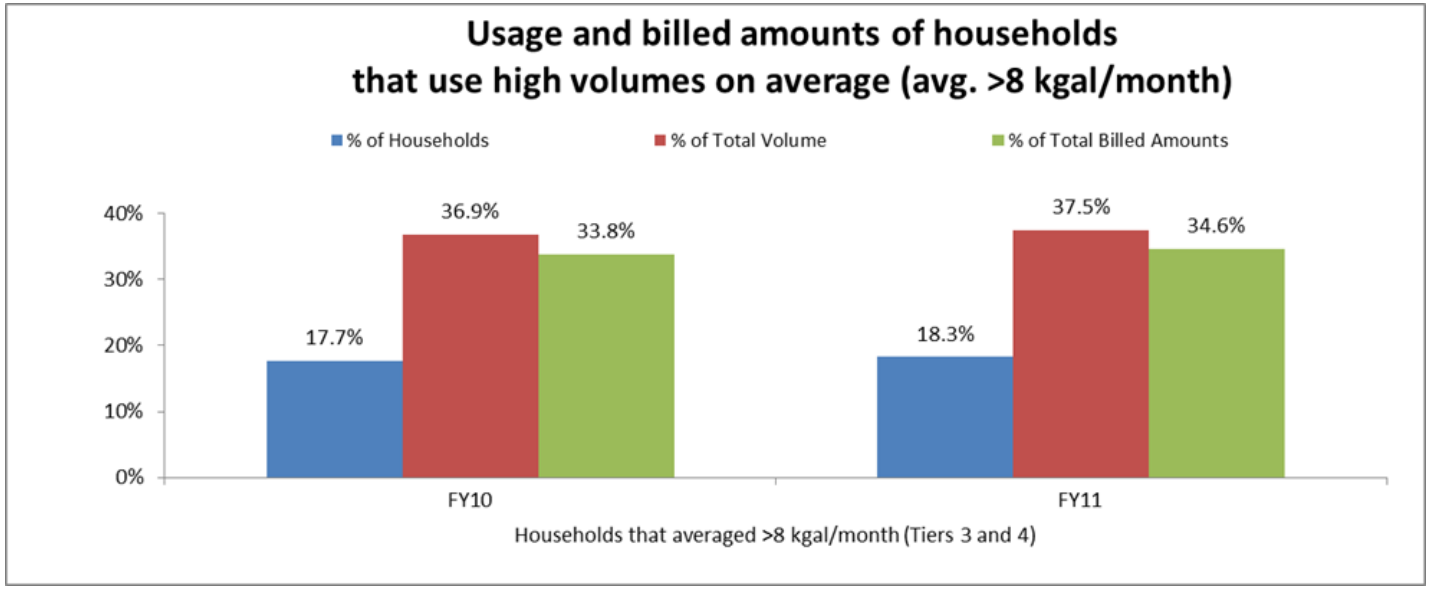
Common Customer Issues

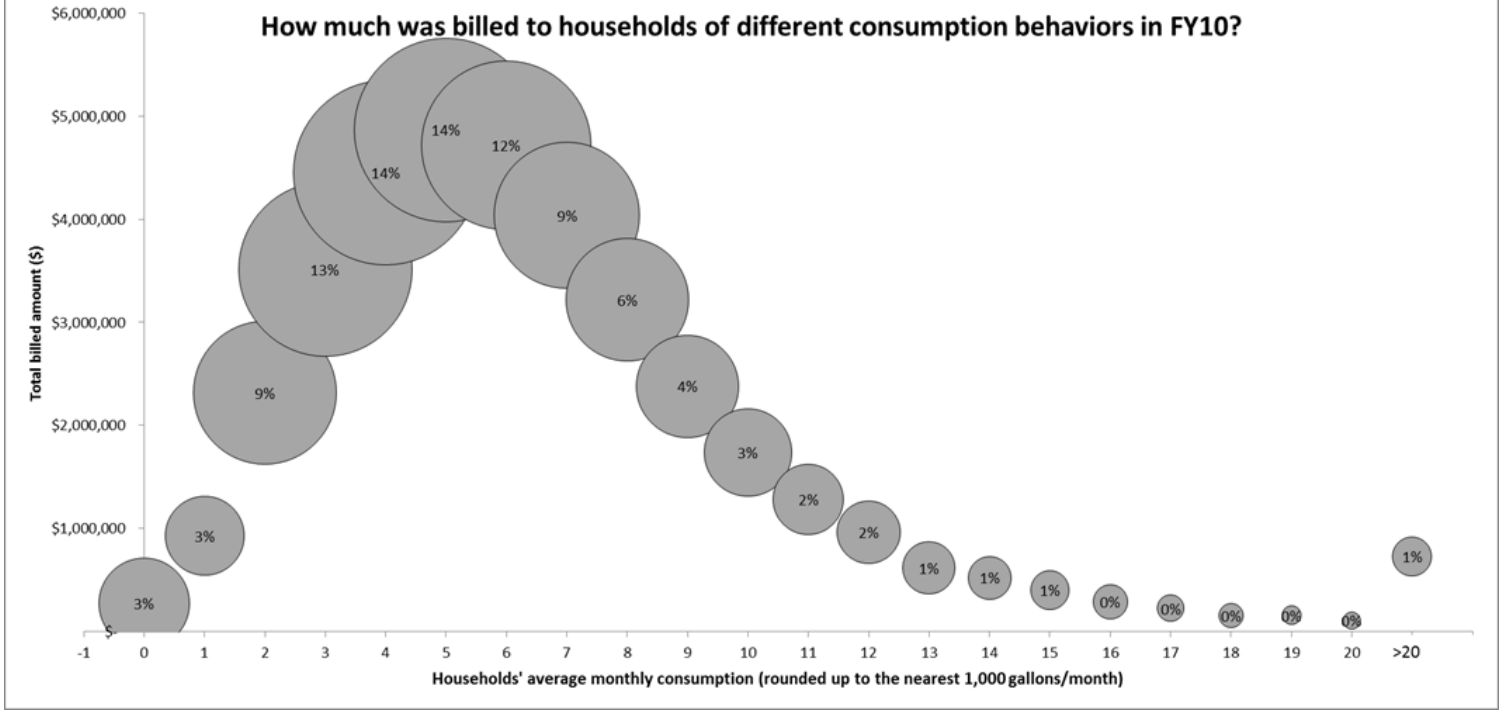
- Why do you charge me a base rate?
- Why do you charge me when I don’t use any water
- I don’t understand the tiered rates? You’re penalizing me for having a large family!
- Why should I pay for water that leaked and I didn’t use!

Overview of Current Rates/Revenue Interactions

	Number of Households		Total Volume Use (1,000 Gallons)		Total Billed Amounts ($)	
	FY10	FY11	FY10	FY11	FY10	FY11
Households averaging zero volume (0 gallons)	1,454	1,395	-	-	$274,966	$208,227
Households averaging 1,000-3,000 gallons/month (Tier 1)	22,262	21,735	477,573	470,201	$6,760,728	$6,370,073
Households averaging 4,000-7,000 gallons/month (Tier 2)	37,223	37,061	2,025,139	2,020,412	$18,072,658	$19,121,792
Households averaging 8,000-20,000 gallons/month (Tier 3)	12,773	13,107	1,360,518	1,392,990	$12,079,964	$12,797,125
Households averaging >20,000 gallons/month (Tier 4)	325	358	100,001	100,357	$730,573	$828,735

	% of Households		% of Total Volume		% of Total Billed Amounts	
	FY10	FY11	FY10	FY11	FY10	FY11
Households averaging zero volume (0 gallons)	2%	2%	0%	0%	1%	1%
Households averaging 1,000-3,000 gallons/month (Tier 1)	30%	30%	12%	12%	18%	16%
Households averaging 4,000-7,000 gallons/month (Tier 2)	50%	50%	51%	51%	48%	49%
Households averaging 8,000-20,000 gallons/month (Tier 3)	17%	18%	34%	35%	32%	33%
Households averaging >20,000 gallons/month (Tier 4)	0.4%	0.5%	3%	3%	2%	2.1%




How much was billed to households of different consumption behaviors in FY10?
Total billed amount ($)
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$-
3%
3%
9%
13%
14%
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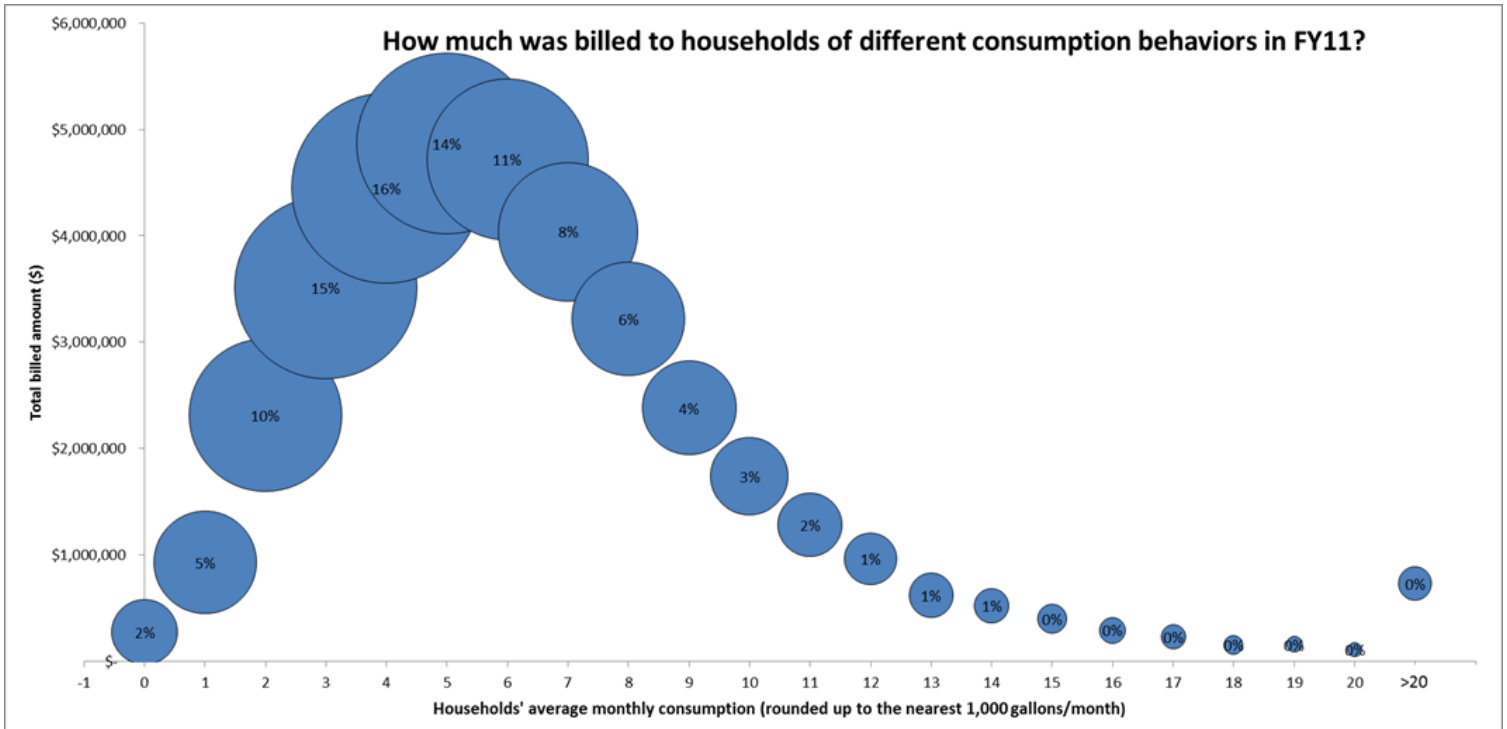
-1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 >20
Households' average monthly consumption (rounded up to the nearest 1,000 gallons/month)


How much was billed to households of different consumption behaviors in FY11?
Total billed amount ($)
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$-
2%
5%
10%
15%
16%
14%
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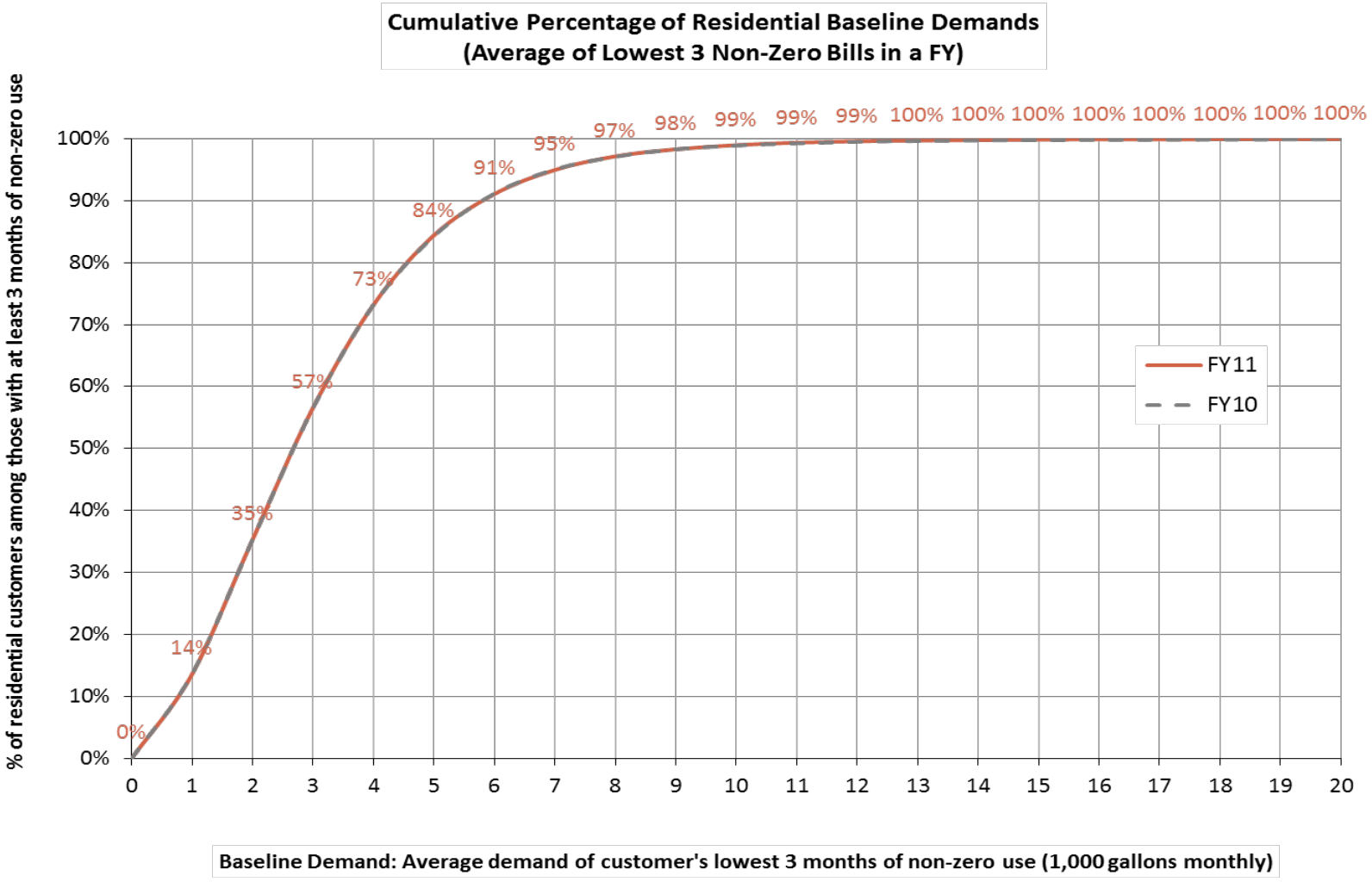
-1 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 >20
Households' average monthly consumption (rounded up to the nearest 1,000 gallons/month)

MODEL MODIFICATIONS APPLIED TO CCWA HISTORIC DATA

Water Budget-Based Rates –

using winter quarter average to establish budget



Water Budget-Based Rates –

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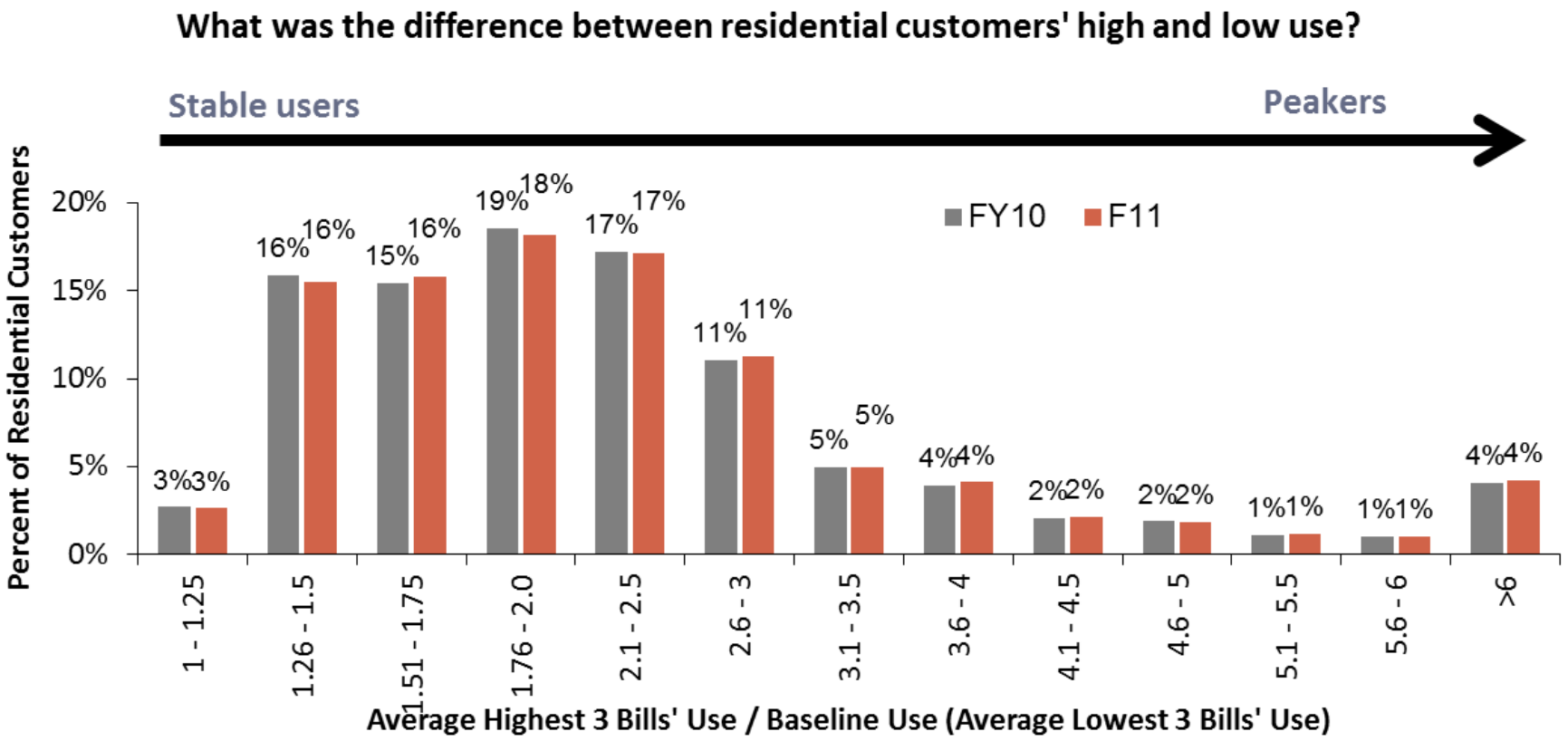


Alternative Business Models
Water Budget

- Positives
  - Winter time/lowest three months address large family issue
  - Justification for tiers
  - Discourages increased summertime usage
  - Consistent with MNGWPD requirements

Alternative Business Models
Water Budget

- Negatives
  - Complex and unique rate structure for each customer
  - Ability of existing software to handle
  - Mixed conservation signal – allows high average winter use
  - CCWA characterized by low summer peaks, therefore, rate may not be effective at encouraging conservation

The Customer*select* Model

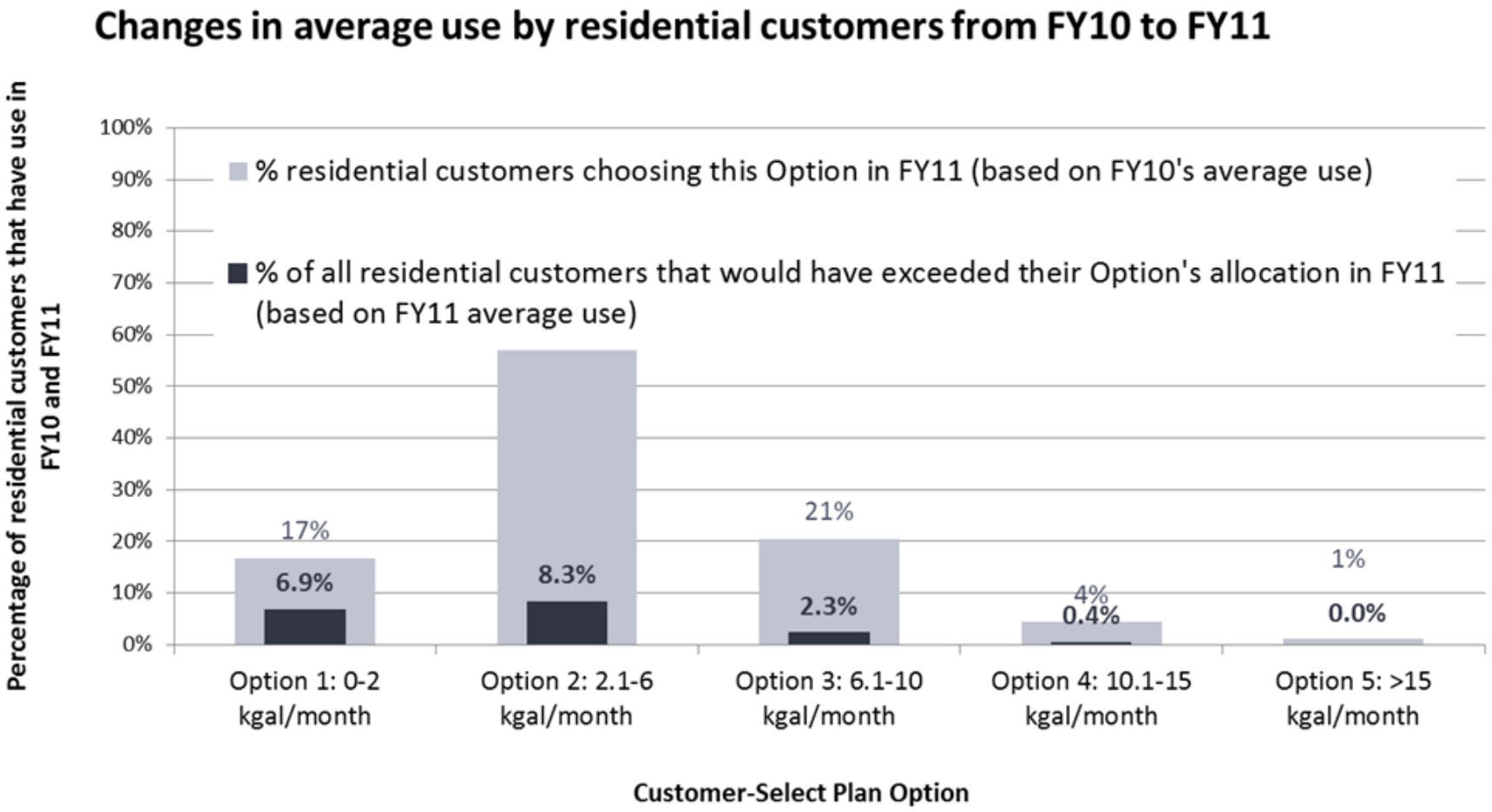
- *Inspiration = cell phone plans*
- Customer buys into a "plan" that allows them a certain "bundle of consumption"

Example residential structure

Plan name	Monthly water allotment	Cost for w&s under current rate structure	Customerselect cost (w&s)	Overage
Lifeline	2,000 gallons	$18.38-$27.10	$25.99	$12.00/kgal
Basic service/Small family	6,000 gallons	$31.46-$62.51	$59.99	$12.00/kgal
Light irrigation/Large family	10,000 gallons	$72.86-$107.51	$89.99	$12.00/kgal
Heavy irrigation	15,000 gallons	$119.06-$165.26	$129.99	$12.00/kgal
Water waster	Unlimited	>$176.81	$229.99*	NA

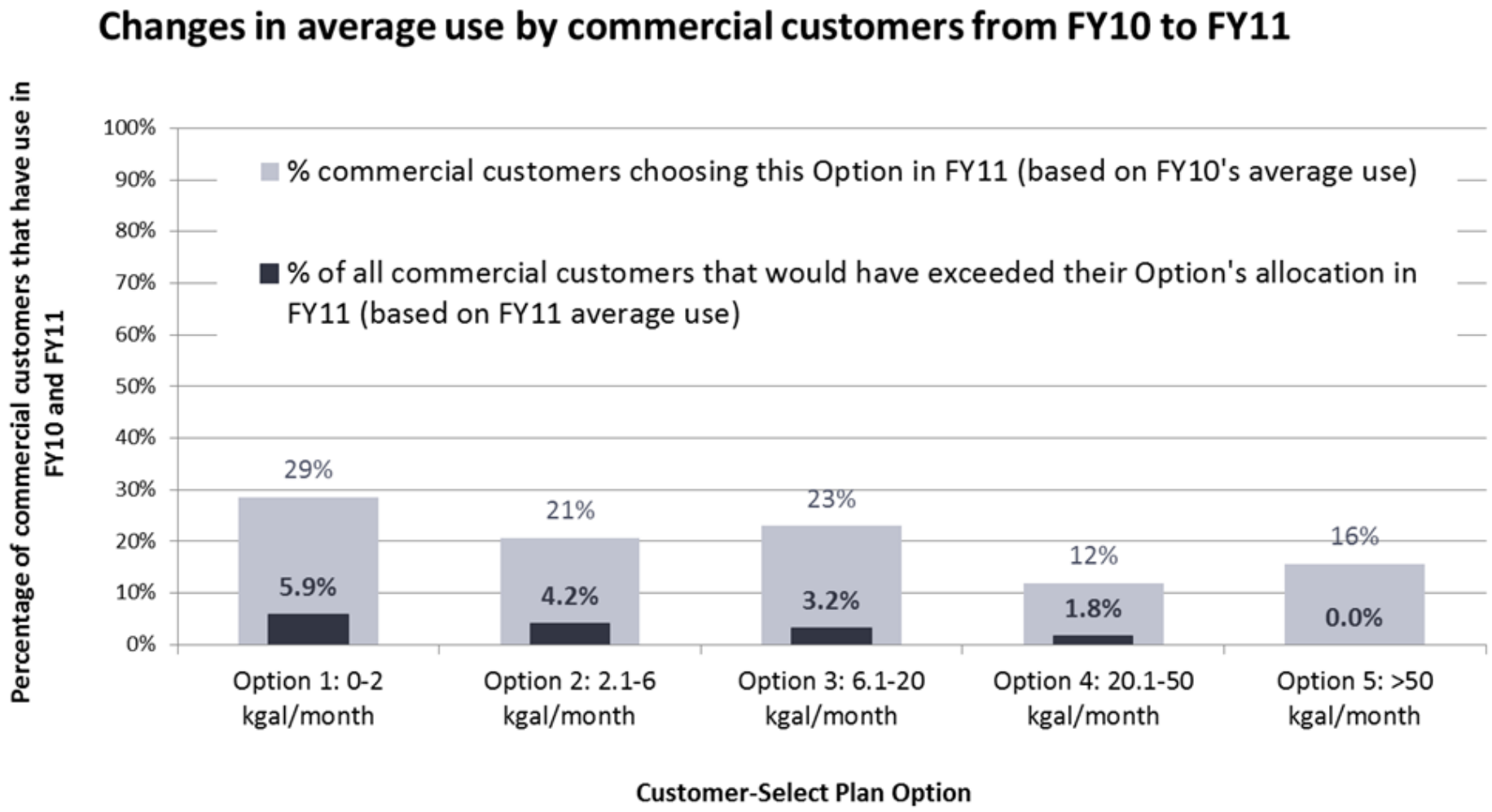
The Customer*select* Model

How Many *Residential* Customers Would Have Exceeded Their Plan?



The Customer*select* Model

How Many *Commercial* Customers Would Have Exceeded Their Plan?



Alternative Business Models
Customer Select

- Positives
  - Relatively simple to program and explain
  - Predictable and stable once customers select rate
  - Customers take an active role in what their usage and rate will be
  - Some conservation benefit as customers attempt to stay within budget

Alternative Business Models
Customer Select

- Negatives
  - Can cause revenue variations if customers change plans frequently or if you have high account turnover rate
  - Conservation signal may not be strong enough to be supported by MNGWPD
  - Customers may demand real time usage info to monitor account
- CCWA has chosen to evaluate this further

The Peak-set Base Model

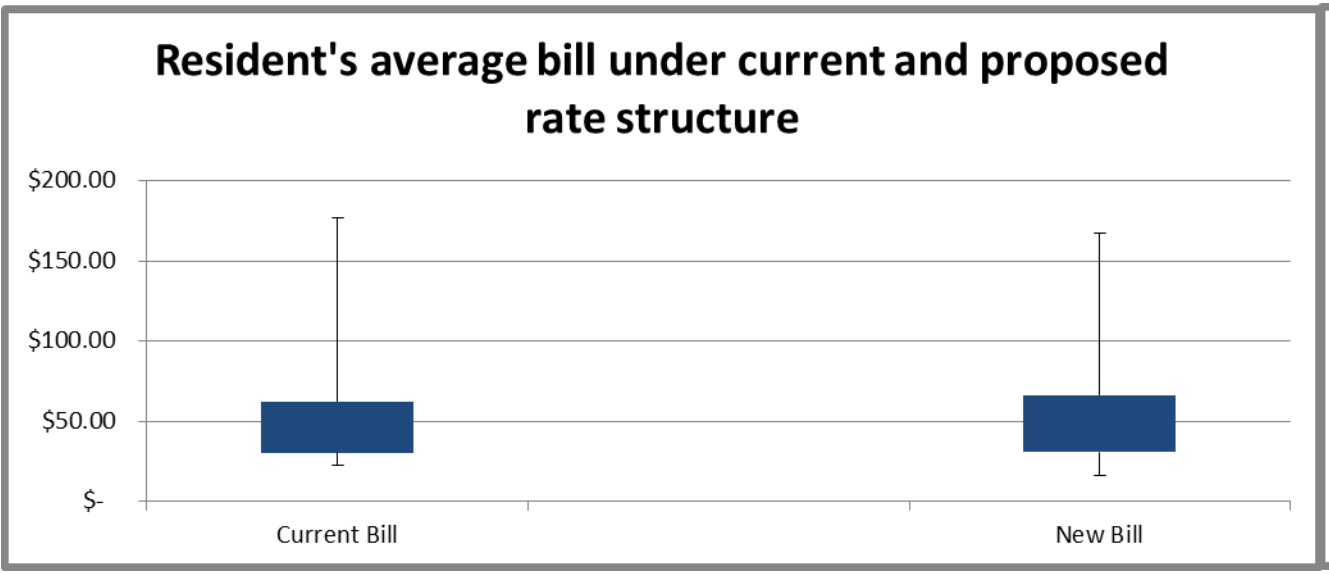
- *Inspiration = energy sector*
- A customer's base charge would be individually set based on her three-year rolling average peak
- Builds more of utility cost recovery into the base charge while still promoting customer conservation and efficiency

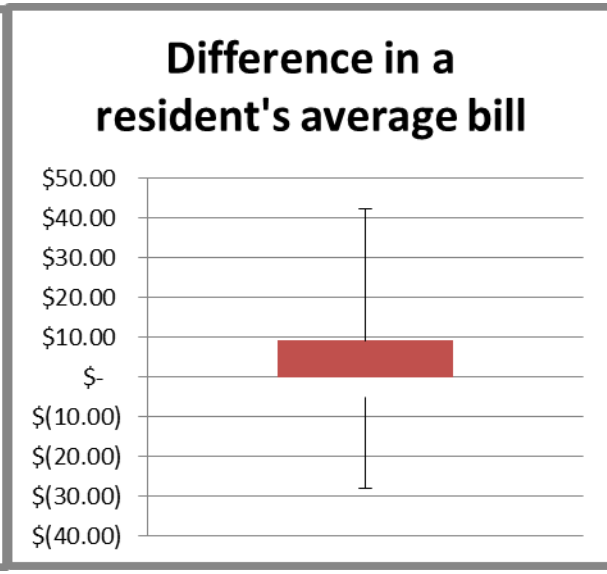
Example residential structure

Residential Peak-set base rate structure				**Base Charge**	**Variable rate**		
			Water	$2.50/ peak kgal	$1.80/kgal		
			Sewer	$5.00	$3.80/kgal		
Example application							
Household	Peak monthly use			Average monthly water use (gallons)	3-year average peak	New base charge for 2012*	Total bill on average month under **current** rate structure	Total bill on average month under **new rate** structure
	2009	2010	2011					
#5	3,000	4,000	3,000	2,611	3,333	$13.33	$31.46	$27.96
#13	13,000	13,000	9,000	7,528	11,667	$34.17	$84.41	$76.32
#83	11,000	7,000	55,000	6,639	24,333	$65.83	$72.86	$103.01

Impact of Peak-Set Base on Utility and Residential Customers for CCWA

Estimated Impact on Utility Revenue and Revenue Stability	Current Bill	New Bill
Total Annual Revenue from 100 Residential Customers	$62,335	$62,996
Revenue Collected from Base Charges (based on average)	$22,056	$31,500
Revenue Collected from Rates (based on average)	$40,278.72	$31,496
Percent Fixed Revenue	35%	50%





Alternative Business Models
Peak Set Base Rate

- Positives
  - Could provide more stable revenue
  - Could send strong conservation signal
- Negatives
  - Very complex to explain and to program
  - CCWA has high customer turnover, three year average not practical
  - Customer disputes over peak use
  - Not a significant reason for customer to conserve below established base rate

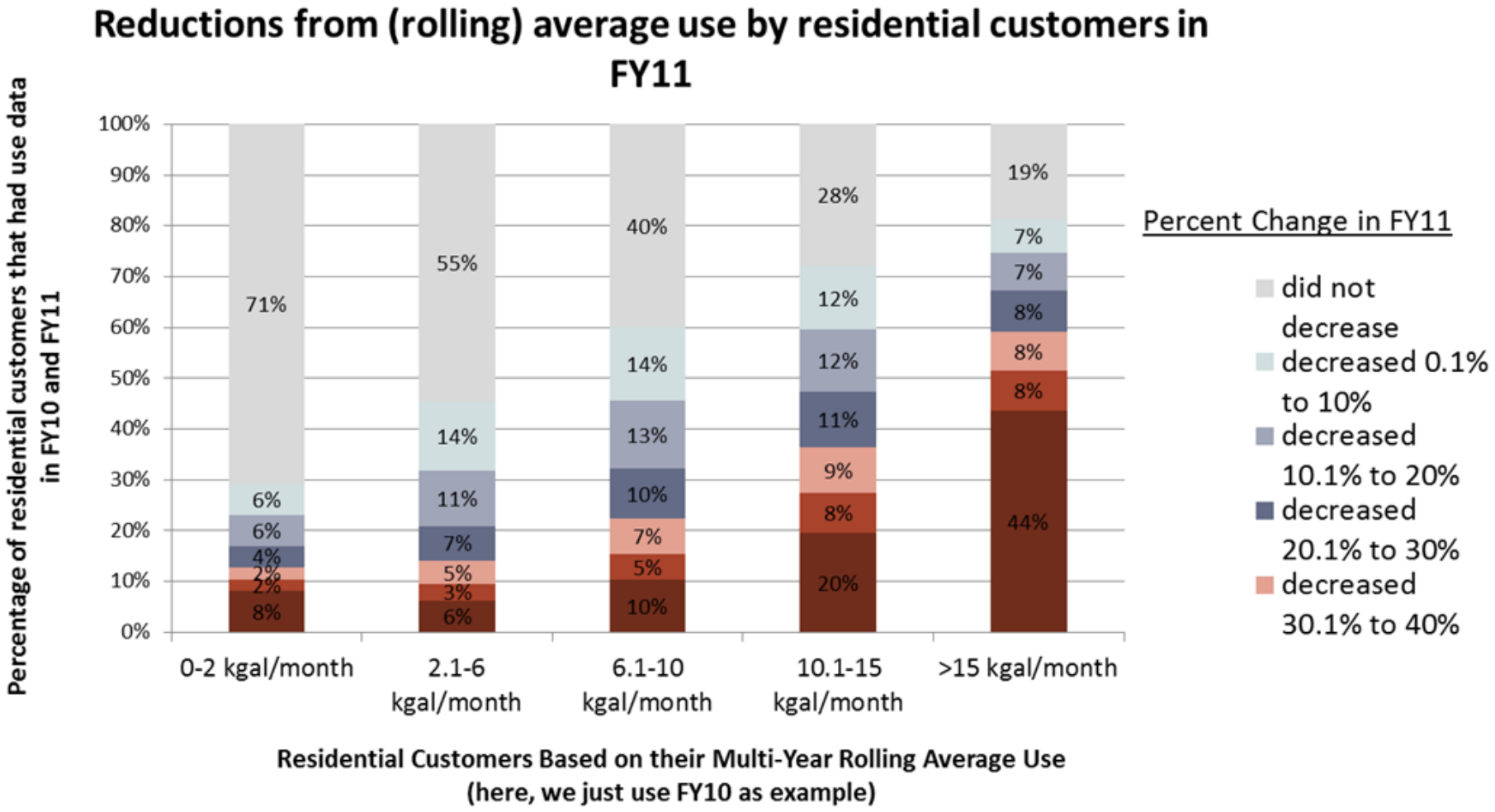
Dividend Model

- *Inspiration = energy sector/ REI outdoor*
- Customers are “members” of utility
- Utility clearly defines its revenue needs (including O&M, debt service, capital reserves, etc.)
- Utility develops a share of this total cost that a “member” should pay for a fiscal year
- Customer pays a fixed monthly fee
- “Extra” funds paid out to customers at end of fiscal year

Dividend Model - Example Structure

	2-year rolling average (2009-2010)	2011 average water use	Reduction (1 – 2011 average water use/2-year rolling average)	Portion of Reduction (Customer reduction x total reduction)	Portion of Profit (% of total reduction x utility profit)
Household #1	9,583	5,833	39% reduction	3.0% of total reduction	$19.20
Household #43	8,750	3,417	61% reduction	4.6% of total reduction	$29.91
Household #47	3,250	9,333	No reduction	0%	$0
Household #54	4,417	3,583	19% reduction	1.4%	$9.26
Business #2	18,833	667	96% reduction	7.3%	$47.33
Business #5	10,417	7,000	33% reduction	2.5%	$16.09
Business #8	23,500	15,917	32% reduction	2.4%	$15.83
			280%	21%	$138

Dividend Model – Application for CCWA



Alternative Business Models
Dividend Model

- Positives
  - Customer incentive to reduce use
  - Positive feedback when receiving dividend check
  - Appears utility is operated more as a business than government organization
  - Improves ability to finance capital needs

Alternative Business Models
Dividend Model

- Negatives
  - Customers may not trust utility to report a “profit”
  - Customers may scrutinize budget and capital needs much more critically
  - May not provide a very strong conservation signal, MNGWPD support
  - Complexity in determining dividend amount

Summary

- Current business model doesn't support high percentage of fixed cost of utility operations
- Customer complaints about current tier system
- Customer concerns over metering accuracy with new rate models
- Impact of conservation pricing on customer behavior?
- More dependable revenue that is not as sensitive to use reductions wouldn't require rate adjustments for conservation
- Support by MNGWPD and State?
- Complexity of rate models
- Food for thought

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QUESTIONS?