



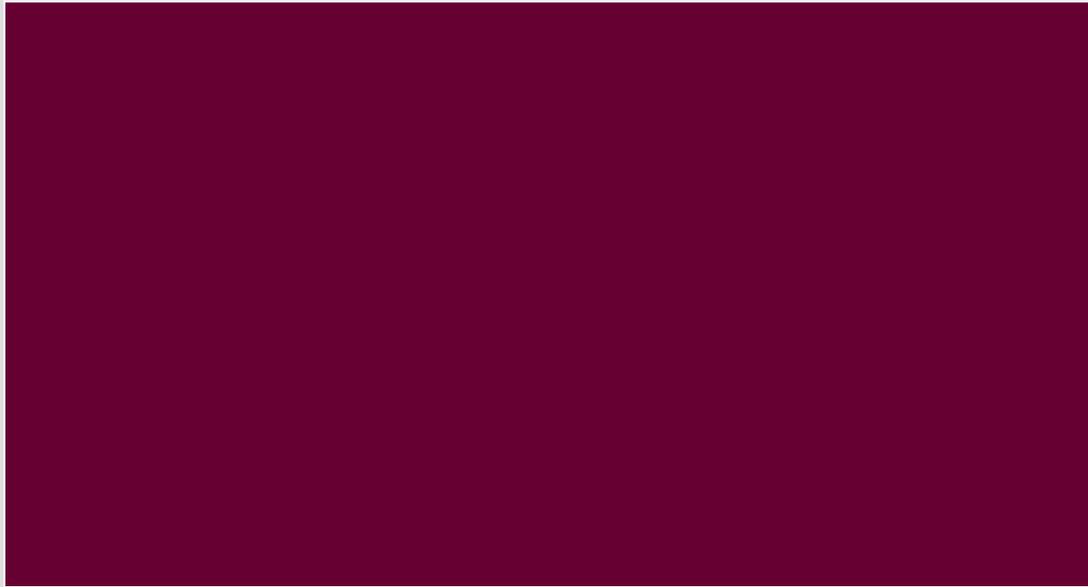
City of San Diego Natural Resources & Culture Committee

Water Budget Based Billing



May 23, 2012

Water Pricing Structure Continuum

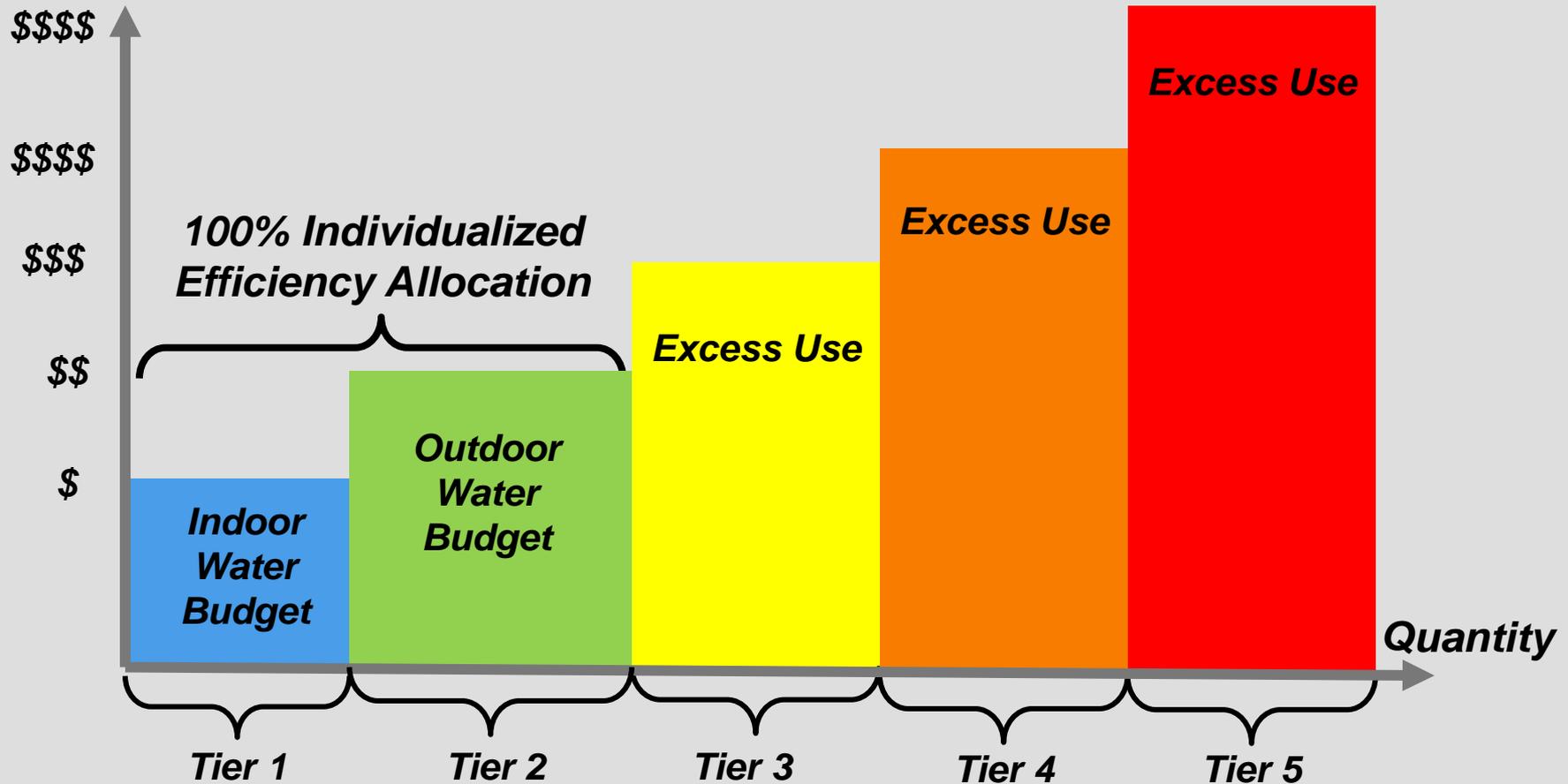


What is a Water Budget?

Individual allocation of indoor and outdoor water use

- Indoor – Household requirement based on...
 - # Residents x gallons per day (gpd)
 - Matches 2009 California legislation (20 x 2020)
- Outdoor – Irrigation requirement based on...
 - Landscape Area
 - Local Weather (Evapotranspiration–ET)
 - Conservation Factor (established by State legislation, AB 1881)

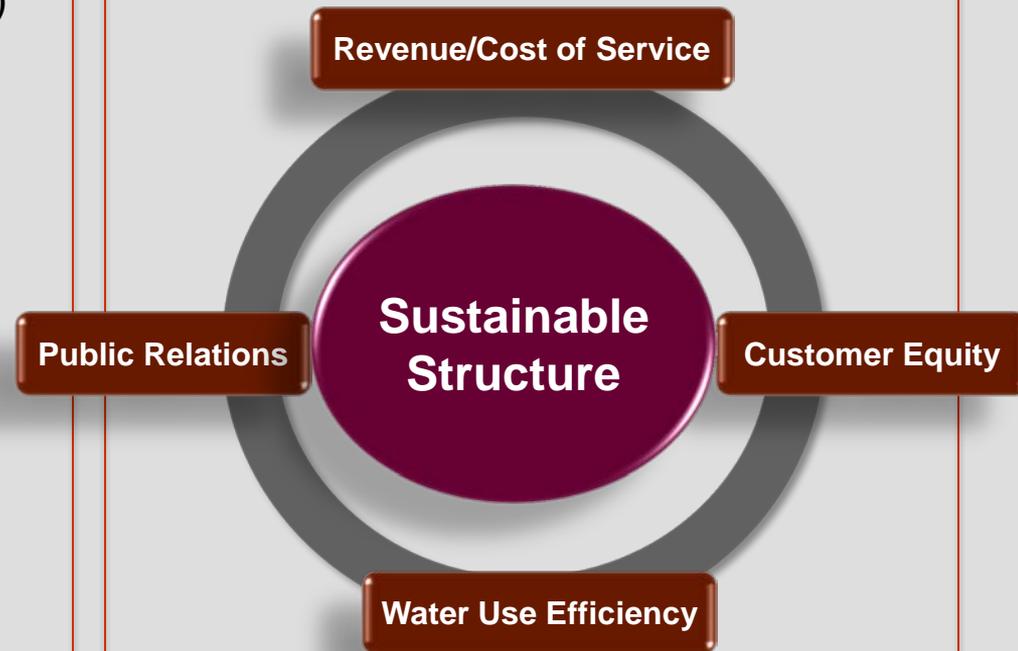
Water Budget Tiers



Water Pricing Structure Needs to Accomplish:

- Recover costs accurately for the agency “cost of service”
- Meet State legislation
 - SBX7-7 (20% reduction by 2020)
 - AB 1881 (landscape water efficiency)
 - Prop 218
- Recognize local conditions
 - Water supply
 - Different customer needs
 - Weather
- Send clear message to customers
 - Water conservation/efficiency

- Revenue Accuracy & Stability
- Water Efficiency
- Customer Equity



Water Budget in Action:

- An objective water allocation
- Potentially different for every customer
- Creates the ability to identify efficient and wasteful users
- Results in equity by recognizing each customer's water need

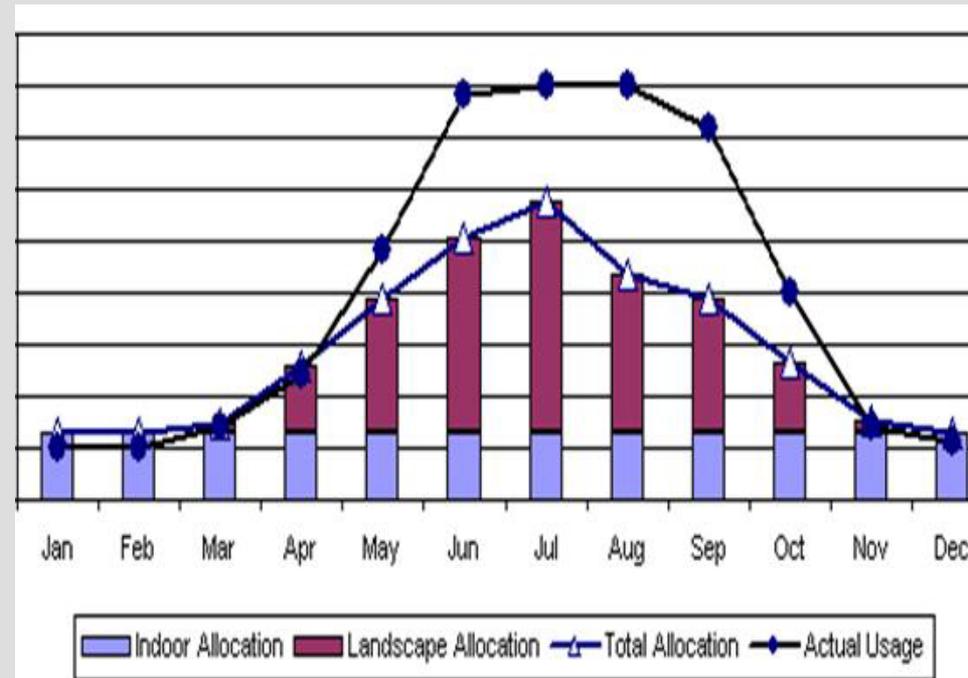
Definitions:

“Equal” = identical, the same

“Equity” = fairness, impartial,
just

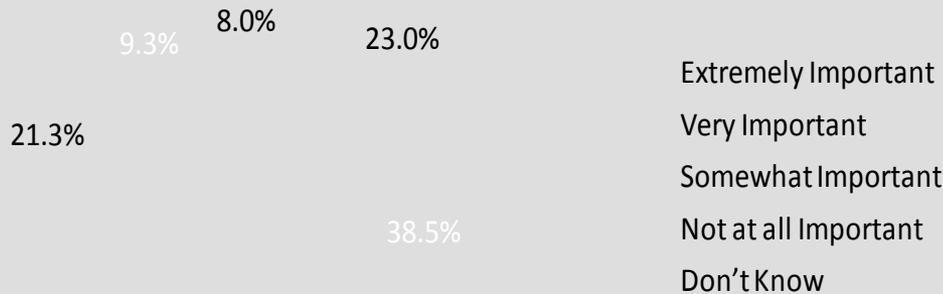
- 2 people
- 1,200 sq ft landscape

- 5 people
- 10,500 sq ft landscape
- Pool



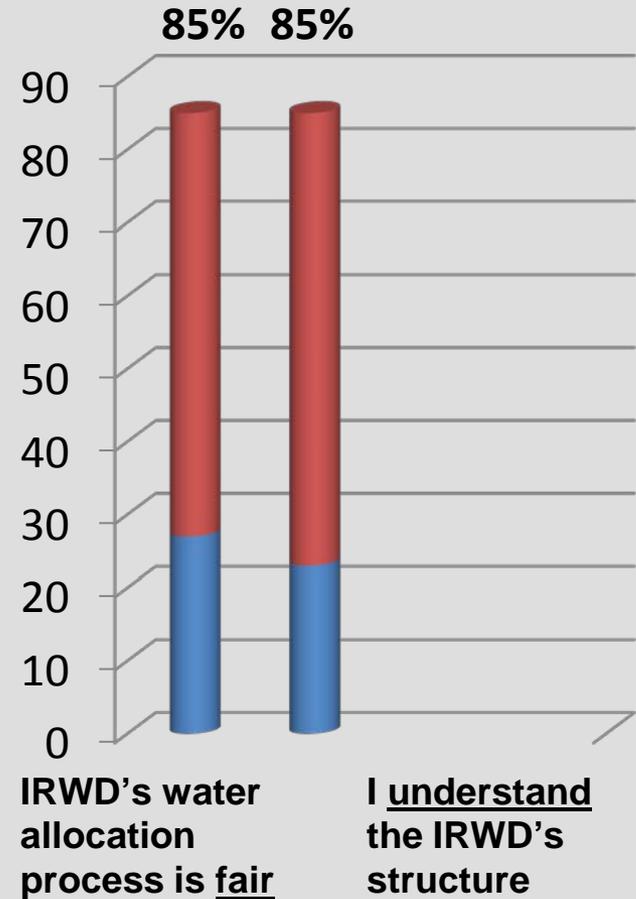
What Do Customers Think? (Myth Busters)

How important is it to reward water use efficiency by homes and businesses and to penalize water waste (for example, with higher water rates for waste)?



82.7% Say Rewarding Efficiency & Penalizing Water Waste is Important!

Source: Riverside, CA Customer Survey 2010



Source: Irvine Ranch Water District, CA Customer Survey 1998

Water Budget Recognizes State, Local Agency and Customer Needs

State:

- Per Capita Efficiency Legislation = 55 gpd (SBX7-7, 20 x 2020)
- Landscape Efficiency Standard = 80% of local evapotranspiration (ET)

Local:

- Different customer water needs (family size, lot size, business need)
- Weather variation (cooler coast to hotter inland)
- Policy priorities (adjust up or down from State guidelines)
- Drought response mechanism (DF)

Indoor

Outdoor

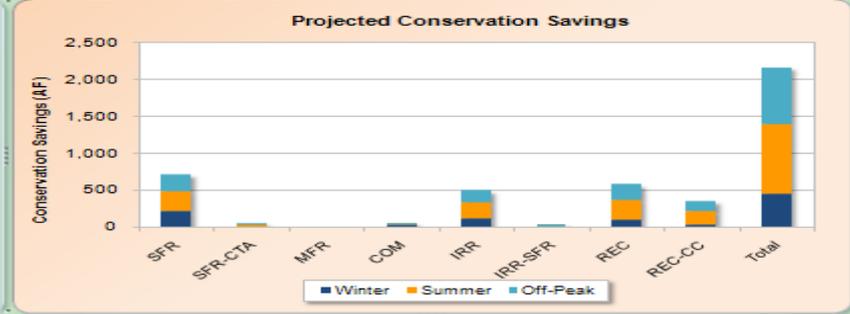
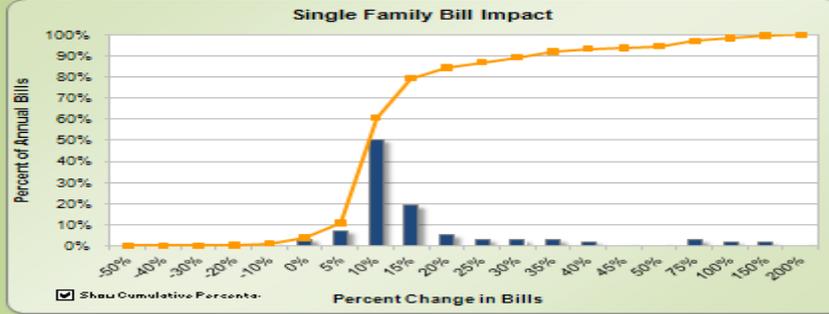
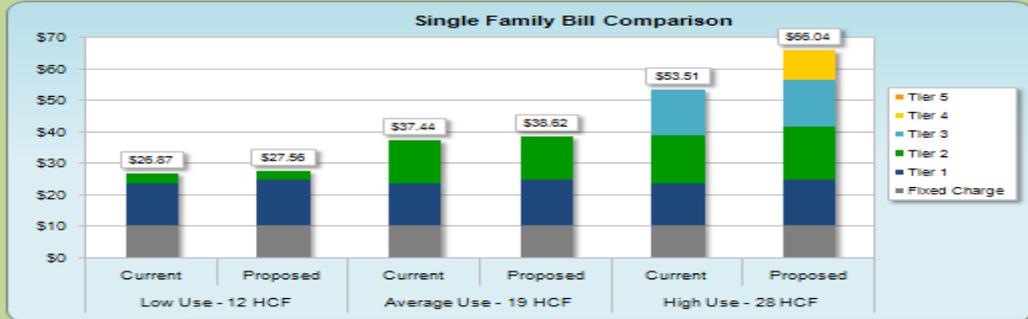
(# Residents) (55 gpd) + (ET) (SF Landscape) (.80) (DF) = Water Budget

Establishing Successful Water Budget: Technical and "Art"

Moulton Niguel Water District Water Budget Rate Study				Solve	
Tier	Rates (\$/HCF)		Tier Upper Bounds		
	Current	Proposed	Current	Proposed	
Tier 1	\$1.35	\$1.41	10	10	
Tier 2	1.51	1.58	20	20	
Tier 3	1.82	2.82	30	30	
Tier 4	2.14	5.65	50	50	
Tier 5	2.23	11.29			

Monthly Meter Charge			Class Rate Structure Assignment	
Meter Size	Current	Proposed		
5/8"	\$10.35	\$10.35	Water Budget	
3/4"	10.35	10.35	Price Ratio Option	
1"	10.35	10.35	Moderate	
1 1/2"	18.20	34.50	Meter Equivalency Schedule	
2"	30.75	55.20	AtWA - 3/4" Base	
3"	41.74	120.75		
4"	57.43	207.00		
6"	88.80	431.25		
8"	120.19	621.00		
10"	151.56	1000.50		

Status:	Solved	Target Rev. Difference	Actual Rev. Difference	Revenue Composition								
Run Time	0:02:09	100%	100%	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Fixed	Variable	Force Target	
			(\$9,353)	100%	100%	100%	25%	20%	17%	83%	25%	
				Outer Tier Factors	125%	150%					75%	FALSE



	Proposed Tiered Rates (\$/HCF)				
	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5
SFB	1.41	1.58	2.82	5.65	11.29
SFB-CTA	1.41	1.58	2.82	5.65	11.29
MEB	1.41	1.58	2.82	5.65	11.29
COM	1.41	1.58	2.82	5.65	11.29
IBB	2.39	2.68	4.79	9.58	19.16
IRR-SFB	2.39	2.68	4.79	9.58	19.16
REC	1.13	1.26	2.26	4.52	9.03
REC-CC	1.02	1.14	2.03	4.07	8.13
Price Ratio	1.00	1.12	2.00	4.00	8.00

Meter	Proposed Meter Charges							
	SFR	SFR-CTA	MFR	COM	IRR	IRR-SFR	REC	REC-CC
5/8"	\$ 10.35	\$ 10.35	\$ 20.70	\$ 20.70	\$ 20.70	\$ 10.35	\$ 10.35	\$ 10.35
3/4"	10.35	10.35	20.70	20.70	20.70	10.35	10.35	10.35
1"	10.35	10.35	20.70	20.70	20.70	10.35	10.35	10.35
1 1/2"	34.50	34.50	69.00	69.00	69.00	34.50	34.50	34.50
2"	55.20	55.20	110.40	110.40	110.40	55.20	55.20	55.20
3"	120.75	120.75	241.50	241.50	241.50	120.75	120.75	120.75
4"	207.00	207.00	414.00	414.00	414.00	207.00	207.00	207.00
6"	431.25	431.25	862.50	862.50	862.50	431.25	431.25	431.25
8"	621.00	621.00	1,242.00	1,242.00	1,242.00	621.00	621.00	621.00
10"	1,000.50	1,000.50	2,001.00	2,001.00	2,001.00	1,000.50	1,000.50	1,000.50

- Tabular Dashboard
- Water Budget Inputs
- Assumptions
- File Setup
- Use Summary
- Fixed Charges
- Graph Data
- First Calc Sheet
- Revenue Composition
- Bill Comparisons

COM Block 1

Price: 100%

Width: 20

“Think Different”: Change the current story to a more positive story with “Sustainable” Design

Technical

Financial analysis, data collection, testing allocation variables, software/hardware, etc.

Philosophical

Move agency from water “seller” to a water “manager” and customer service provider

Political

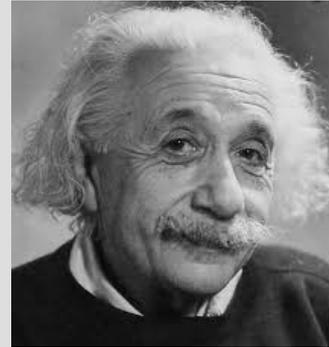
Transparent story, defensible, helps the community, etc.

Practical

Revenue/Conservation, funding for conservation, staff training, customer services may increase

Public Relations

*How, when, what, etc.
Increased customer services paid for by those who waste water*



*“Doing the same thing over and over again and expecting a different outcome, is the definition of insanity. **Think differently.**” Albert Einstein*



*“Boys we need to **think differently.**”
Billy Beane, Oakland Athletics/Moneyball*



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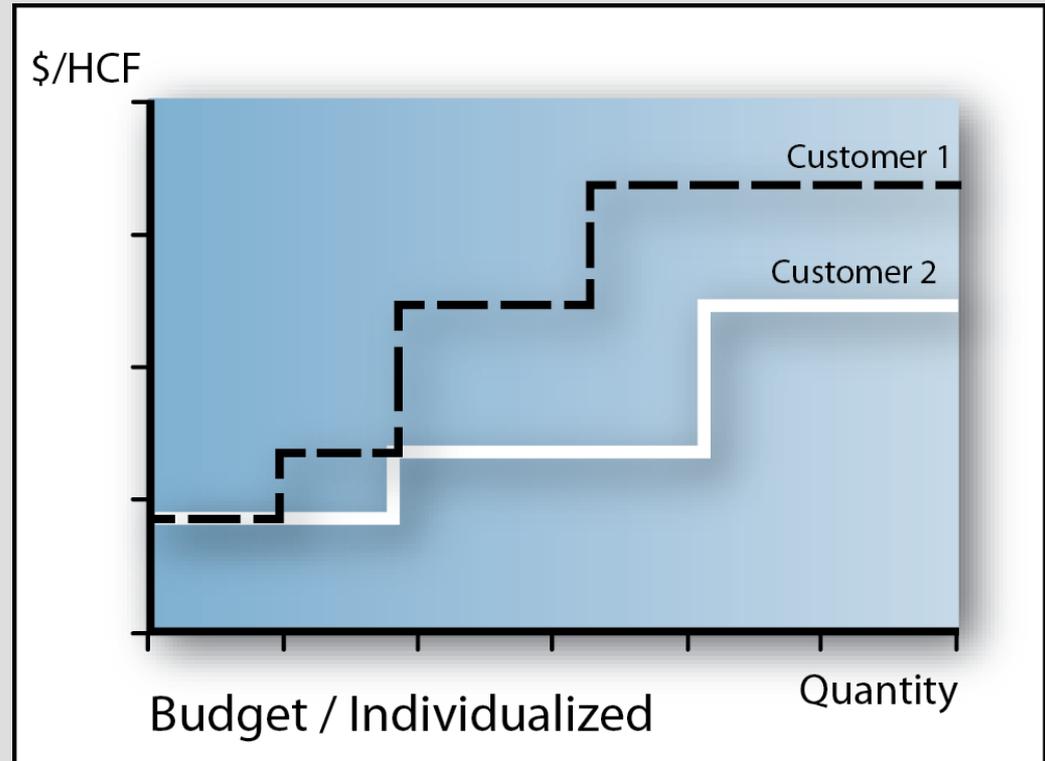
Water Budget Based Billing Task 1 – Pilot Study Review



May 23, 2012

Water Budget Structure

- Blocks and prices are based on individual water budgets:
 - Number of people in house
 - Square feet of landscaped area
 - Efficient water use



Methodology Successfully Used by Others

Approach to test assumptions and required variables for determining a SFR water budget allocation:

- **Irvine Ranch Water District**
- **Western Municipal Water District**
- **City of Corona**
- **Eastern Municipal Water District**
- **Rancho California Water District**
- **Moulton Niguel Water District**

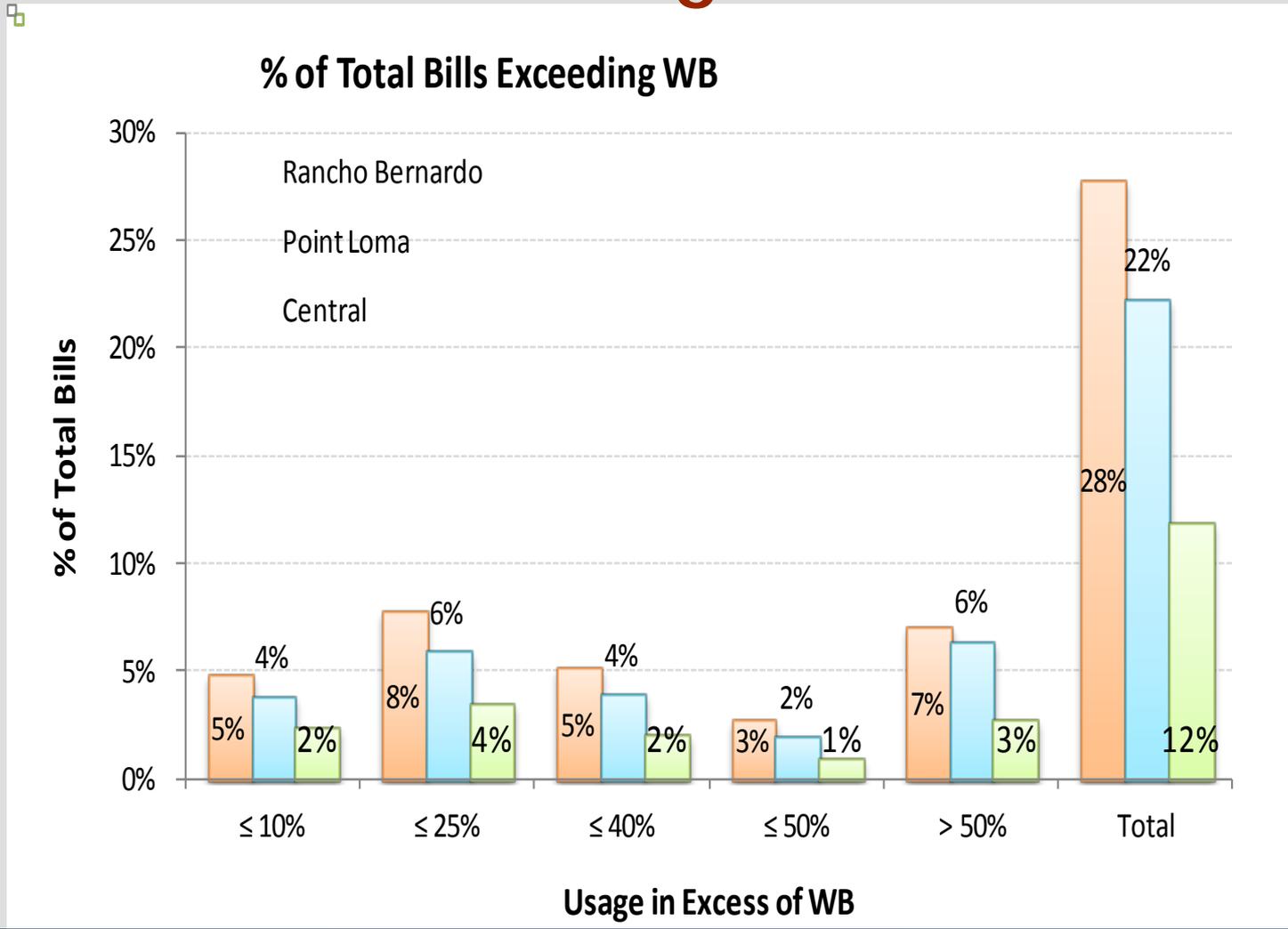
Pilot Study Key Assumptions:

1. Indoor use of 60 gallons per capita per day
2. Average of 4 people per household
3. Landscape factor of 80% of local evapotranspiration
4. Size of the landscape area was determined by:
 - Using existing parcel data (lot size)
 - Conducting hand-measurements over parcel images (geographic information system parcel images) of select sites
 - Determining a typical percentage of landscape area per parcel size

Size of the Landscape Area

Total SFR Property Size	Percent of SFR Property Landscaped
$\leq 1/8$ acre	28%
$> 1/8$ acre but $\leq 1/4$ acre	39%
$> 1/4$ acre but $\leq 1/2$ acre	59%
$> 1/2$ acre but $\leq 3/4$ acre	60%
$> 3/4$ acre but ≤ 1 acre	67%
> 1 acre	72%

80% of Bills Met Budget Allocations



Pilot Study Review Conclusions

- The Study approach/methodology is valid
- The key assumptions are reasonable and appropriate
- Water budget values are reasonable and will be finalized during Tasks 2-5:
 - persons per household
 - water use per person
 - landscape area “OK” at this stage of the project
- Water budget based billing is feasible for single-family residential customers

Additional Observations

- The data required for implementing a water budget allocation for SFR accounts exists and/or can reasonably be developed
- Integration with new billing system is critical
- A well-designed internal education and external outreach and education program is integral to successful implementation of a water budget based billing structure